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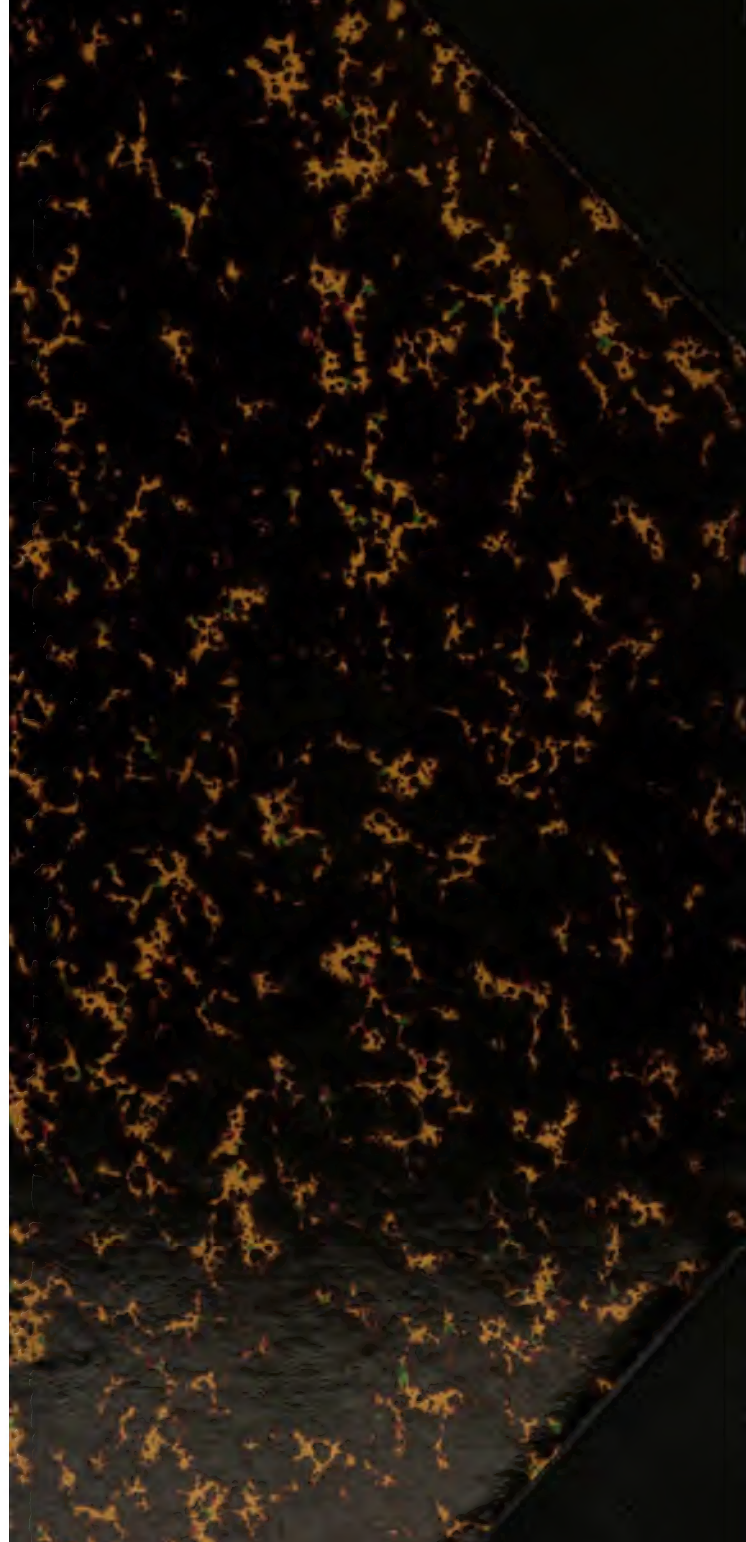
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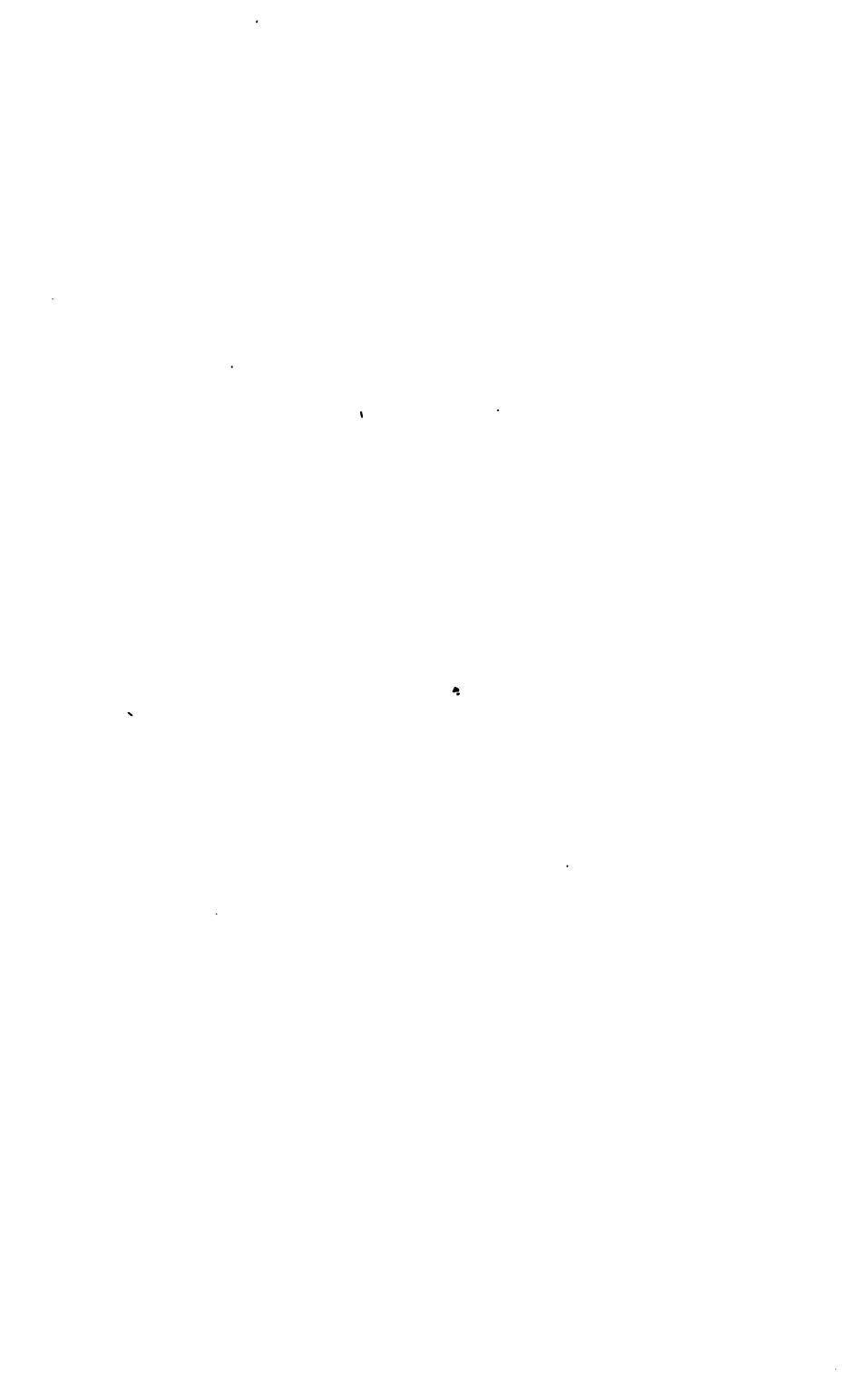
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PART I. ORIGINAL COMMUNICATIONS.

ART. I.—*The Diagnostic Value of Pain*.^{*} By GEORGE PEACOCKE,
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Dublin.

My first and very pleasing duty is to tender to the members of the Dublin University Biological Association my sincere thanks for the great honour they have conferred upon me in electing me to be their President for the ensuing session.

Thanks to the efforts of some of my predecessors in this office, and to the enthusiasm and energy displayed by many of its members, the Association is now in a most flourishing condition, and I hope that during the session now about to be inaugurated there will be no falling off in the interest taken by the students in the work of this Association.

The subject of pain, which I have chosen for my Address, is one of very general interest, and possesses, I think, peculiar interest to the student of medicine.

Pain is, at one time or another, experienced by everyone. It is the commonest symptom of the least departure from normal health. From few, if any, diseases is it entirely

^{*} The Presidential Address to the Dublin University Biological Association, delivered on Thursday, November 30, 1905.

absent, and from it the sufferer seeks relief, often regardless of the cause, anxious only that he should be freed from pain.

In conducting a large out-patient department at hospital the remarkable frequency with which pain occurs as the prominent symptom of disease, more especially of what we call minor ailments, has been forcibly brought under my notice. The reply to the question—"What do you complain of?" is almost invariably pain—pain in the head, the chest, the back, the limbs, or the stomach. The patient has sought advice because he was suffering pain, and that pain renders him for the time miserable and incapable of performing his work, whatever it may be.

But merely to give relief to pain should not be our endeavour. Pain, no matter where it may be felt, and no matter how slight, is due to some cause; to discover that cause is the duty of the physician. In many instances there is little difficulty in ascertaining this, but often one is quite at a loss to know the *fons et origo mali*.

We have no accurate means of gauging the intensity of pain, for what is terrible suffering to one does not appear at all so acute to another. The expression so commonly employed, "he bears pain well," may either mean that the sensation conveyed to the brain evokes a less response in one individual than in another, and thus he actually feels the pain less, or that he has a greater power of overcoming the sensation, and can by force of will appear to suffer little.

We are all familiar with the neurotic patient who, with no apparent lesion, complains continually of pain, who is exquisitely tender to the touch, and who at once responds to our suggestion that pressure in one spot, no matter how gently applied, causes intense pain, and yet who, a few moments afterwards, when, perhaps, the attention is otherwise distracted, feels no pain, even though firmer pressure is applied to the same spot.

We label such a patient as hysterical, and regard the pains as purely functional in origin; and yet how often, perhaps after the lapse of some years, definite organic disease of the nervous system declares itself. The pains of the neurotic may have

just as definite a cause as the well-recognised lightning pains of locomotor ataxia.

But while there may be often a difficulty in placing a correct estimate as to the real importance of the apparent suffering of an individual, in many instances the intensity of pain is a valuable guide.

No more important example would be given than the agonizing pain that accompanies the perforation of a hollow viscus in the abdomen.

When we consider the matter there does not appear to be any reason why a pin-hole opening in the peritoneal coat of the stomach or intestines should produce such pain; the introduction of a large needle into the intestine from without produces little or no suffering. We must regard it as a special arrangement by which the onset of an accident, not only so grave, but one in which the early recognition is so important, can be easily ascertained. Were it not that the impulse which passes from the affected organ to the brain produces such a response in the sensation of acute pain the triumphs of surgery in this region would never have been attained.

The greatest difficulty in coming to a right conclusion as to the exact cause which produces pain is, however, due to the fact that the sensation of pain is not always felt in the immediate neighbourhood of the diseased organ, but is reflected to some other and more distant part, and this brings me to the subject which I more especially wish to bring under your notice—namely, the diagnostic value of pain, the result of disease of the abdominal and thoracic viscera.

There is considerable evidence to show that the viscera are insensitive organs. Observations made on animals who were subjected to various injuries of their internal organs showed that the animals thus operated on evinced no pain or discomfort.

Careful clinical observations carried out on the human subject, where various organs were exposed during the course of operative procedure, have equally demonstrated the fact of the insensitiveness of the viscera.

How is it then that pain is such a prominent feature when

disease attacks these organs? It is apparently due to the fact that, though these organs are themselves incapable of evincing pain, there is originated in them an impulse which passes by their nerves to the centre of one or more sensory nerves in the brain or spinal cord. The stimulation of the nerve centres evokes pain, which is referred to the peripheral distribution of these nerves in the body wall.

The abdominal and thoracic viscera have their chief nerve supply from the sympathetic system. The functions of these nerves are mainly concerned in regulating the functions of the various organs to which they are distributed, and there seems to be little evidence to support the assertion that certain afferent nerves in the viscera are sensory in function, and that certain ganglia are also sensory.

The same may be said as to any sensory function possessed by the vagus or phrenic nerves, the afferent fibres contained in them have not been proved to be sensory, and in all probability merely convey impressions that stimulate the centres of cerebro-spinal or spinal nerves.

Under ordinary conditions the individual is unconscious of the performance of the various visceral functions, though the flow of nervous impulse from the brain and spinal cord or the viscera and from the viscera to the brain and spinal cord is constantly maintained.

But, when from any cause the strength of the afferent impulse is increased, the stimulation arising in the brain or cord affects neighbouring cells which are in connection with nerves supplying skin and muscle of the external body wall. The individual then becomes conscious of this by feeling pain in the peripheral distribution of these nerve centres thus stimulated, and certain muscles likewise become tonically contracted or more liable to contraction in order to protect the underlying viscera. Thus, peristalsis of the bowel takes place and the individual is unconscious of the process. But when the peristalsis becomes violent he becomes conscious of the fact, but it is revealed to him as a severe pain in the nerves of the skin and muscle of the abdomen.

No better instance of the referred character of the pain in

visceral disease is seen than that which occurs as the result of renal calculus. The pain, commencing in the lumbar region, passes to the front downwards over the lower part of the abdomen to the testicle.

It is often assumed that the pain then felt is due to the stone scratching the lining membrane of the ureter in its passage downwards. But it seems more probable that it results from a hyperæsthetic condition of the tissues supplied by the twelfth dorsal nerve, and the testicular pain to involvement of the genito-crural nerve.

The extreme hyperæsthesia of the skin or deeper tissues of the body wall that is met with in most affections of the abdominal and thoracic viscera is a fact that admits of no dispute, and can only be regarded as a referred pain.

The tenderness in the right iliac region over an inflamed appendix, or in the epigastrium in a case of gastric ulcer, cannot be explained on the supposition that the pain arises from pressure on these organs, for the slightest touch on the skin is often sufficient to produce the most intense pain, and this over an area ill-defined in its limits, and generally more extensive than the area immediately covering the diseased organs.

Attempts have been made to map out the greater part of the body into areas supposed to represent the peripheral distribution of individual sensory nerves by means of the hyperæsthesia present in visceral disease. But if these areas be carefully studied they will be found to afford no safe guide for such accurate delimitation. Hyperæsthetic areas undoubtedly occur in the field supplied by spinal nerves whose centres are associated with the sympathetic or other nerves supplying the viscera affected. But it seems doubtful if a single nerve in its entire distribution is ever alone affected. The stimulation from the viscera seems to affect portions of the centres of several nerves that supply the same or contiguous areas of skin.

In the thorax we have a further example of this from an examination of the effects produced by an attack of pleurisy. It is by no means uncommon to find a very considerable portion of the chest wall on the affected side so hyperæsthetic

that even very gentle percussion causes considerable pain, and the stabbing pain that is so prominent a symptom, at any rate in the early stages of the disease, on the patient taking a deep breath, may be due to the violent or spasmodic contraction of the hypersensitive intercostal muscles, rather than to the rubbing together of the inflamed pleural surfaces, there being no evidence to show that the pleuræ themselves are sensitive organs. Another not infrequent cause of thoracic pain that might be mentioned here is that met with in tuberculosis. Often a very considerable time before the stethoscope reveals any definite signs of pulmonary disease a patient may complain of vague pains through the chest. These are not infrequently considered to be neuralgic or rheumatic, but when they are persistent, and there are other reasons for fearing the presence of tuberculosis, the physician will do well to be very watchful for any more marked or certain indications of the disease.

From these more general statements I will pass on to consider the character and locality of the pain, as met with in some special affections of the viscera. First, with regard to the hollow muscular organs. In a very large number of instances there is a marked resemblance between the character of the pain in the affections of the hollow muscular organs—the digestive tract, bile ducts, ureter, bladder and uterus. It gradually increases in intensity until it reaches its height, and then gradually subsides, often leaving a sensation of soreness behind it. The duration of the pain is variable; in some instances it may last for hours, in other cases for only a few minutes, but in all cases it seems to depend on the character and duration of the muscular contraction.

Pain due to affections of the stomach is perhaps most easily studied and demonstrated in cases of gastric ulcer. The pain is usually felt in the upper zone of the abdomen, and in the larger number of instances in the epigastric region, and here there will also be found an area, often very localised, in which extreme hyperæsthesia of the skin is present. Occasionally the pain is referred to the lower part of the anterior surface of the chest or to the umbilicus, and in more than one case I have

noted pain referred to the left iliac region. Everyone is familiar with the fact that the pain is frequently referred to the back—to the spines of the seventh and eighth dorsal vertebræ, and that marked tenderness to pressure over these spines can usually be elicited.

As to whether the exact site of an ulcer can be accurately located by the position of the pain and the area of greatest hyperæsthesia, I am somewhat doubtful. It has been maintained that if the situation of the pain is high up in the epigastrium the site of the ulcer will be near the cardiac orifice of the stomach. If the site of pain be felt in the middle of the epigastrium, the ulcer will be found near the middle of the stomach. If the site of pain is low in the epigastrium, the ulcer will then be at the pyloric orifice of the stomach.

Quite recently a patient was admitted into hospital under my care. From the history of the case it was evident that an old standing ulcer of the stomach had perforated, and that a local abscess had formed. The pain which the patient felt was referred to the left of the middle line in the epigastric and hypochondriac regions. The abdomen was opened, and a quantity of foul-smelling pus and gastric contents evacuated. The ulcer was not looked for. The patient's condition was extremely bad, and though she lived for some short time afterwards she eventually died. The *post-mortem* revealed an ulcer about the size of a half-crown situated close to the pyloric orifice, and a large multilocular abscess of the liver. While the history of the onset of sudden pain in the upper zone of the abdomen, along with other facts unnecessary to mention, rendered the diagnosis of perforative gastric ulcer a simple one, the exact position of the site of pain suggested an ulcer at the cardiac rather than at the pyloric end of the stomach.

In affections of the intestinal tract we can gain little in localising the lesion from the position of the pain. It is, I think, almost a universal rule that the pain caused by spasm or severe peristalsis of the small intestine, no matter what the cause may be, is always referred to the umbilical region—a region where also it may be noted the pain of appendicitis is not uncommonly felt. In obstruction of the large intestine

I have generally noticed that the pain is not so diffused, but is more localised to the part affected; but in some instances, when the lower end of the large intestines is the seat of disease, the sensation of pain is referred to the supra-pubic region.

In inflammatory conditions, such as are met with in cases of appendicitis and in tumours, whether they be due to new growths or to simple faecal accumulation, there is usually marked tenderness over the affected area. That this tenderness is due to hyperæsthesia of the external body wall I verified very markedly in a case that was recently under my care. A lady who had a very distinct tumour in the course of the descending colon, due to faecal accumulation, was very tender to palpation over the tumour, but on gently pinching up the skin and muscle immediately covering it I found that the hyperæsthesia was most exquisite and even far more marked than on ordinary palpation. She evinced no pain or uneasiness when I pinched up the muscles more forcibly on the corresponding part on the opposite side.

The most severe pain that is met with in abdominal disease is that due to the passage of a stone, whether it be a gall-stone or renal calculus.

An attack of gall-stones is generally ushered in by severe, excruciating pain coming on suddenly. It is often referred to the epigastric region and neighbouring parts of the umbilical region. From here it radiates widely across to the left side or downwards, but more commonly it passes round to the right side, along the lower ribs to the back, to the eighth, ninth or tenth dorsal vertebra; when the attack has passed off there is usually extreme hyperæsthesia of the body wall, not always limited to a small area, most marked in the neighbourhood of the gall-bladder, but extending widely both upwards and downwards. It is not always easy to determine that a case is one of gall-stone colic; other conditions, such as adhesions of the stomach to the liver or gall-bladder, may give rise to similar symptoms, or the symptoms may be so vague that an absolute diagnosis is impossible. Mayo Robson describes a spot peculiarly tender to light pressure, which is situated two inches from the middle line and a little higher than the level

of the umbilicus, which he considers affords almost convincing evidence of the presence of gall-stones in doubtful cases. It is the point of emergence from the rectus muscle of a twig of the ninth dorsal nerve.

Even more severe than the pain of gall-stone colic is that which results from the passage of a stone along the ureter.

The attack usually comes on quite suddenly, lasting a few hours, or even two or three days, and ceases only when the stone has escaped from the ureter. The pain is paroxysmal in character, it begins in the back in the lumbar region and shoots down the course of the branches of the lumbar plexus, and is felt in the pubes, groin or thigh, and in the male not infrequently passes down to the testicle.

But apart from the attacks of renal colic, lumbar and renal pain is a common symptom of stone in the kidney, the pain is not generally confined to the region of the kidney, but is widely distributed to the testicles along the genito-crural nerve, to the upper part of the thigh by the same nerve to the leg and inside of the foot by the anterior crural nerve. Sciatica, severe enough to keep the sufferer within doors for weeks or months, also may be produced by a calculus in the kidney. This transference of nerve influence, as Henry Morris points out, also explains the gastric disturbances, retraction of the testicle, irritability of the bladder, and the pain referred to the thorax sometimes thought to be due to pleurisy.

With regard to pain as a symptom of affections of the bladder, I will merely mention in passing that in spasm of the bladder, due to cystitis or stone, the pain is referred to the pubes, perineum, or along the urethra to the end of the penis, due to stimulation of the nerves from the hypogastric plexus or the sacral nerves. The fact that the sphincters as well as the urethra are supplied with sensory nerves often renders it a difficult task to localise the pain.

The same may be said of the uterus, as the cervix and vagina are supplied by sensory spinal nerves. The pain felt in the operation of curetting the uterus is due entirely to the stretching of the cervix, the actual scraping of the uterus is a painless operation

The pain in labour, which is due to the contractions of the uterus, is often entirely limited to the back, about the upper end of the sacrum, and cannot, as MacKenzie points out, be explained as being due to pressure of the child's head upon nerves, as the lumbar plexus, or to stretching of the cervix. Pressure on nerves gives rise to pain in the peripheral distribution of the nerves, and as the nerves of the lumbar plexus are not distributed to this region that cannot account for the pain. Further, the same pain is felt in this region when the uterus is small—with no child's head to complicate matters, as during the after pains—as it is when the uterus is large and extends high in the abdomen.

The pain in labour is also felt across the lower part of the abdomen, and along with this there is sometimes such tenderness of the abdominal muscles that the condition resembles what is found in acute peritonitis.

The pains in labour have on rare occasions been found to be almost entirely referred to the upper part of the thigh.

This completes the list of the hollow muscular organs in the abdominal cavity. I have endeavoured to show that the character of the pain that results from disease of these organs is typical. It, as a rule, gradually increases in intensity, reaching its height, and then gradually subsides again. The character and duration of this pain agrees with the character and duration of the muscular contraction: that the pain is not felt in the organs themselves, but is referred to the peripheral endings of certain spinal sensory nerves, and that for each organ the distribution of these referred pains is fairly constant and typical.

With regard to the other organs of the abdominal cavity, pain is not so constant or acute a symptom, and, indeed, it is difficult to say that they exhibit any sensory symptoms apart from their serous coverings. Pain, muscle tenderness and cutaneous hyperæsthesia are not uncommon in the right hypochondrium as the result of many affections of the liver, but this only when the capsule either is the seat of inflammation or is unduly stretched. The same may be said as to the cause of pain in the left side, resulting from affection of the

spleen. The pain and tenderness found in the iliac region in diseases of the ovaries is ill-defined and often difficult to accurately locate, owing largely to the hysterical symptoms which are so likely to be present. In any case where tenderness is found it is hard to conceive that it can be due to direct pressure on the ovaries, as they lie in the pelvis sufficiently far away from the abdominal wall to be affected by the touch which gives rise to pain in certain affections of these organs.

Turning lastly to the serous membrane which lines the abdominal cavity—the peritoneum—we can find no proof that the pain arising from inflammation of this membrane is not due to hyperæsthesia of the skin and muscles of the abdominal wall. The tenderness is often very extreme, the lightest touch causing intense pain. The hyperæsthesia is widespread, and extends sometimes beyond the limits of the peritoneum up into the chest, and downwards, to a slight extent, to the skin of the thigh. As the peritoneum, like the abdominal organs already referred to, is not supplied by a sensory spinal nerve, it is only following out the same principle to consider that the pain of peritonitis does not arise in the nerves of the peritoneum, but is referred to the peripheral distribution of one or more spinal nerves.

When we turn to the thoracic viscera, the heart and lungs, we find that here also pain as a manifestation of disease is not uncommon, but there is no evidence to show that the organs themselves are in any degree sensitive. Of the many different affections to which the heart is liable the one most likely to produce pain is disease of the coronary arteries, with degeneration of the muscle of the heart. Associated with this is also frequently found sclerosis of the root of the aorta and aortic valves. Other valvular lesions seem little prone to produce pain, and it would appear that pain as a symptom of heart disease depends on some cause which exposes a heart already weakened to a strain beyond its strength.

Violent exertion or vaso-motor contraction would thus be fruitful sources.

It is exactly these conditions that are present in cases of angina pectoris. The pain of this affection is most commonly

felt first over the chest, across the middle line, or to the left side, passing outwards. From this it radiates upwards towards the axilla and down the left arm, and is occasionally felt also in the right arm.

Sometimes no pain is felt in the chest, and cases have been recorded where it was limited to the left forearm. In certain heart cases a field of pain and muscular tenderness is found to occur in the neck, the tip of the shoulder, and the back of the head on the left side. When the sterno-mastoid or the upper border of the trapezius muscle is slightly pinched, tenderness, sometimes exquisite, is complained of by the patient. "I have observed," says MacKenzie, "cases where this tenderness was almost the only symptom beyond weakness in cases of heart failure, and the patient's recovery was coincident with a diminution and ultimate disappearance of this tenderness." This field of pain and tenderness is probably occasioned by a stimulus passing upwards by the vagus nerve. The origin of the vagus and spinal accessory nerves are so closely associated that one is forced to conclude that the stimulus proceeding by the one has affected either the spinal accessory nerve itself or the sensory nerves associated with it in its distribution.

These reflected pains in disease of the heart, due either to the association of the vagus with the spinal accessory or of the sympathetic with the upper dorsal nerves, are almost of more importance than pain felt only over the region of the heart. Precordial pain is a common complaint, and patients thus suffering frequently seek advice fearing that their heart is affected. I am sure every physician will agree with me when I state that pain in this region is in the large majority of cases not due to any cardiac affection, but results from flatulent distention of the stomach or intestines.

In discussing the subject of pain as a symptom of disease of the lungs it will, I think, be granted by everyone that disease of these organs, where the pleura is not involved, gives rise to no pain. Large phthisical cavities or inflammations of the lungs are entirely painless unless a pleuritis is present.

I have already alluded to the character of the pain produced by pleurisy, and pointed out how frequently it is accompanied

by a hyperæsthesia of the external body wall, of either the skin or the muscles. Indeed, I know of no means by which, from its character, the pain of pleuritis can be distinguished from the pain produced by some affection or injury of the thoracic wall.

When the diaphragmatic portion of the pleura is affected we usually find that the pain is situated in the abdomen often as low down as the umbilicus, and the pain in this region is not infrequently associated with hyperæsthesia of an irregular patch of skin and a certain amount of muscle tenderness.

Rarely in diaphragmatic pleurisy the pain is referred to the top of the shoulder on the affected side. Ross has drawn attention to this shoulder pain, and explains it by reference to the fact that this area is supplied by the fourth cervical nerve, and the phrenic nerve also comes from the fourth cervical.

This concludes the remarks (brief and somewhat disjointed as they have been) that I wish to make on the subject of pain as a manifestation of disease of the abdominal and thoracic viscera, and I will now pass on to another aspect of the subject—namely, headache.

Owing probably to the extreme frequency with which headache occurs as a symptom of disease, the subject has attracted many writers, and many classifications of the affection have been given.

The task of arriving at a precise diagnosis as to the origin of many cases of headache is not always an easy one, for, as with pain, wherever it may be felt the sensibility of the individual plays a very important part; while one person suffers severe headache from a slight elevation of temperature, another feels no discomfort from a high temperature.

Some people are in the happy position of not knowing what a headache means, while others are martyrs to constantly-recurring headaches from the slightest causes. With many even the smallest quantity of alcohol is sure to produce headache, while others can indulge freely without any such effect. A patient whom I have known for many years to almost constantly take too freely of alcoholic drinks has often told me that he never had a headache in his life. The

idiosyncrasy of different patients to the action, in this respect, of certain drugs, such as opium, is a well established fact.

Again, we can gain little from the locality to which the pain is referred. Even in headache, due to a definite local cause, when it might be supposed that the pain would be always referred to the neighbouring portion of the head, we find that clinical observation is opposed to such a conclusion. To take a few examples. Headache the result of eye strain, though often felt in the frontal region, may be situated in any part of the head. Ear disease may produce pain in any part of the same side of the head or, indeed, on the opposite side. Cerebellar tumour has been often known to give rise to frontal headache and disease of the naso-pharynx to pain in the occipital region. It is a curious fact, and one that I have frequently observed, that in hysterical and hypochondriacal patients, whose symptoms as a rule are anything but constant or typical, the headache complained of is usually referred to the vertex, and along with the pain a sensation of pressure is often experienced.

Another, and perhaps the greatest, difficulty in arriving at a precise knowledge of the cause of headache is due to the great number of affections of which it is a prominent symptom. Almost every cranial and intercranial disease gives rise to headache, more especially when the meninges are affected. I have already alluded to the occurrence of headache due to reflex irritation from derangements of the eye, ear, and nose—a most important group, and one which it is well always to keep constantly in mind. The frequency with which carious teeth produce headache is also well known; and, lastly, there remains a large group of cases where the cause is not so well defined.

I believe that in these a toxic agent must be sought for as the origin of the trouble. The headache of fever is more likely to be due to the action of the toxin of the organism that produced the fever than to the fever itself.

The headache of nephritis is a uræmic manifestation. Disorders of the gastro-intestinal tract, and more especially chronic constipation, produce headache which is surely

toxæmic in character. The headache of anæmia, such a common occurrence in chlorosis, is cured by the administration of purgatives rather than by that of iron. The headache resulting from impurities in the air of badly ventilated rooms belongs also to this class, as also that produced by the action of certain drugs, such as opium and quinine.

The above list, though not complete, comprises the vast majority of the causes that give rise to headache, and, although the question of treatment does not enter into the scope of this paper, I cannot pass from this aspect of the subject without entering a protest against the indiscriminate manner in which drugs of the class of antipyrin and phenacetin are used for the relief of headache. There are many unfortunate people who suffer greatly from constantly-recurring headache, and who seek freedom from each attack of pain in some such preparation as I have mentioned. In most, if not all, such cases I believe that careful investigation will discover some cause, whether it be in the mode or manner of living or in a diseased or defective organ of the body, and that treatment directed in this line will bring not only permanent freedom from headache but will save the individual from the injurious effects which so often follow upon the constant use of drugs of this class.

In the earlier part of this paper I stated that pain was always due to some definite cause, and for this reason I think it is unfortunate that neuralgia should be considered, as it so often is, a separate disease. Commonly, neuralgia is used to signify any pain which shoots along the course of a nerve, irrespective of the cause that may have produced that pain. The term was a very convenient one in the days gone by when accurate knowledge of the causation of disease was mostly conspicuous by its absence.

The lightning pains of tabes, and the pain produced by herpes zoster, are now known to be due to organic disease of the nervous system. Brachial neuralgia and sciatic neuralgia are no longer so named, but are rightly termed neuritis. A further diminution in the group of idiopathic neuralgias has occurred in the increased knowledge of the referred pains of visceral disease.

Closely allied to this latter, but differing from it in some points, are the neuralgias associated with some discoverable disease about some organ in the head, the eye, nose, ear, or teeth; and lastly, neuralgia secondary to some general disease in which the cause is most probably a toxic agent. In this we should class gout, diabetes, anæmia, malaria, syphilis, influenza, &c.

We see, therefore, that the large majority of so-called neuralgias, as with headache, are merely symptoms of some disordered condition, and so great has been the progress of late years that we are almost justified in believing that all neuralgias will ultimately be classified as symptoms of disease in some part of the nervous system (either peripheral or cerebral), or as the expression of the reaction of the nervous system to visceral irritation.

There is, however, one form of neuralgia which must still be regarded separately, and about which little that is sure is known, and without reference to which a paper on the subject of pain would be incomplete. I refer to *tic douloureux*. The full clinical picture of this hideous disease is familiar to every physician.

At first the attacks of pain may be limited to the territory of one branch of the nerve—to that of the inferior dental branch of the third division, for instance. But sooner or later the pain spreads to other branches on the same side of the face, until at last all three divisions may be more or less implicated. The attacks also alter in frequency. Throughout the space of many hours daily the patient is racked by paroxysms of pain at regular intervals, enduring from a few seconds to many minutes. Sleep, except under anodynes, becomes impossible, the patient dare not eat, talk or smile for fear of precipitating a paroxysm. Life thus becomes utterly unbearable, and is not uncommonly ended by suicide.

The pathology is quite obscure.

The observations that have been made so far on portions of the nerves extracted by surgical operations have been unsatisfactory and inconclusive. Examination of the Gasserian ganglion has likewise been abortive of any result. The relation

between some defect in the teeth and the disease has been long discussed, and it seems probable that at any rate some cases take their origin from the teeth.

Very commonly the pain begins in the upper or lower jaw, in the region of one of the teeth, and from this it radiates to the cheek, the temporal fossa, the zygoma, around the eye on the inner and outer side, and over the forehead.

The absence of any apparent diseased stumps is not sufficient proof that all is well with the teeth, for an easily overlooked and yet important cause of severe and persistent facial neuralgia is the presence of an unerupted wisdom tooth lying, as I have seen it, horizontally in the jaw, and jambed between the next molar tooth and the ascending ramus of the jaw.

In its earlier stages *tic douloureux* presents only the characters of what has been termed neuralgia minor, and there is nothing in the character or severity of the pain to point to the case developing into such a serious malady.

It is fortunate that all sufferers from facial neuralgia do not subsequently endure the tortures of this formidable disease. The origin of the pain may in many cases be the same—a defective tooth—and the character of the pain is similar, at least in the early stages of *tic*; the sequel, however, is different.

It appears to me that, perhaps, it is in this the mystery of this disease lies, and that in some individuals, for reasons that as yet cannot be explained, what may be called the habit of pain has become established in the nerve, and that although the originating cause of that pain may have been removed, the pain still survives, and nothing will cure it short of the removal of the Gasserian ganglion.

In presenting these few, and I fear somewhat scattered, remarks on the subject of pain I have endeavoured to point out some of the difficulties that beset us in trying to arrive at a correct diagnosis in accurately locating the origin of any given pain.

Let me recapitulate them.

In the first place, that the pain is so often a referred pain that although pain and tenderness may be and are usually present in the immediate neighbourhood of the affected organ,

the pain that causes most distress to the patient is situated in some more remote part of the body.

Though careful investigation of recent years has thrown much light on the subject of referred pain, and painful areas associated with disease in certain organs have been diligently mapped out, it is not uncommon to find that these prescribed areas cannot always be relied upon. Other neighbouring areas seem to join—if I may use the expression—in sympathy with them, and thus a wide and ill-defined region of pain and hyperæsthesia is presented to our notice.

Again, as I have pointed out at some length, the viscera themselves are not sensitive, and the pain they give rise to is indistinguishable in many cases from pain arising in the body wall.

Pain, for instance, in the lumbar region may arise from various causes, such as muscular rheumatism, commonly known as lumbago, disease of the spine, disease of the kidneys, disease or misplacement of the uterus, affections of the intestinal tract, most frequently chronic constipation. It may not always be easy to arrive at once at an accurate diagnosis as to which of those causes is in operation and has produced the pain, but surely we will not be satisfied with the empiricism of the quack and prescribe for our patient back-ache pills.

Another difficulty which meets us every day in estimating the true value of pain is what may be termed the idiosyncrasy of the individual to pain. One patient suffering from perhaps some trifling ailment attracts the attention of all who come in contact with him by his attitude and groans, and evokes the sympathy of all who hear him ; while in the next bed lies a quiet sufferer who never moans, who never makes complaint, and it is only by the marks that suffering has left upon his countenance that you can tell he is in pain. To be able to place a correct estimate on the value of the intensity of pain that an individual suffers can be learnt only by experience and a careful study of human nature.

We are not able to feel the pain our patient suffers ; we cannot palpate it as we would a tumour ; we cannot place it

under the microscope or submit it to any recognised method of examination—we are largely dependent on the patient's own statement that he suffers pain.

And in this arises the great difficulty that we all experience in arriving at a correct conclusion as to the seat of pain in infants and young children. They are incapable of intelligent speech, and we can discover the existence of pain only by the recognition of visible signs of suffering.

If the head is the seat of suffering, pain is indicated by a contraction of the brows which wrinkles the skin of the forehead. If the pain be in the abdomen, the nose often looks sharp, and the child draws up the corners of the mouth with a peculiar expression of distress.

If the child moves his head constantly from side to side on the pillow he is probably annoyed with pain in the head or ear. Frequent carrying of the hand to the forehead or side of the head has usually the same significance. If the child repeatedly flexes the thighs on the abdomen very violently in sudden paroxysms he is probably suffering from colic. These are a few of the guides we possess in diagnosing the presence and locality of pain in young children, but in practice we find that they cannot always be relied on, and are very uncertain.

While recognising these difficulties in arriving at a true estimate of the value of pain in the diagnosis of disease we rightly regard it as a valuable help and as a symptom that should never be ignored. The character, intensity, and locality of the pain are in some instances alone diagnostic of the disease that has caused it; in others we gain assistance from other signs and symptoms that are present, while in others we are often at a loss to account for the pain, and in our treatment have recourse to empiricism, and though earning the gratitude of our patient by giving ease to his pain must leave a feeling of dissatisfaction in the mind of the physician.

To bring relief to suffering humanity is surely the great object of our profession, and the more accurately we can discern the true diagnostic value of pain the more will our efforts be crowned with a permanent success.

ART. II.—*A Case of Acute Graves's Disease with Fatal Termination.** By JOHN AGAR MATSON, M.D. Univ. Dubl., F.R.C.P.I.; Assistant Physician, House of Industry Hospitals, Dublin.

CASES of Graves's disease ending fatally so soon after their onset are rare. For the year 1904, except in St. Thomas's and St. Bartholomew's Reports, I could find no case recorded in the journals or in those hospital reports to which I had access. Severe vomiting seems to be the one symptom common to fatal cases; therefore its onset in any case should prepare one for a bad prognosis. Quinsy or sore throat has been noted as the starting point of many of these acute cases, so it is probable that all the glandular organs of the throat may be provoked by the superactivity of the thyroid gland.

In the case I am about to describe the whole duration of the attack, from the time when the patient first complained of illness in the convent till her death in the hospital, comes to 19 days.

M. A. H., aged twenty, laundry-maid in Stanhope Street Convent, Dublin, was sent into the Hardwicke Hospital on the 29th of April, 1905, suffering from sore throat and difficulty in breathing.

History of Illness.—On the 19th of April she complained of sore throat, and was seen by the doctor of the institution, who ordered her to bed. After a few days she got so much better she was allowed up, but in a day or two she was noticed to be very despondent and emotional. The doctor then sent her into the Hardwicke.

Family History.—None obtainable.

Previous Medical History.—For 10 years she had been an inmate of the institution, and, though looking fragile and delicate, was never actually ill until this attack. She was always obedient, and never showed any neurotic tendencies. The enlargement of the thyroid was noticed only the day before her admission to hospital.

Examination.—Patient is of medium height, thin and anæmic. She looks much younger than her age, being more like a girl of fifteen than one of twenty, the mammæ being very small. She

* Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, December 8, 1905.

was heavy and drowsy, though easily aroused. Temperature, 99° F. ; pulse, 140 ; respiration, 44, noisy, showing some laryngeal obstruction. Both the tonsils and pharynx were covered by a very viscid thick creamy white secretion, on removal of which the parts were found to be very red and inflamed. There was not much difficulty in swallowing. The swab taken from her throat proved negative. The thyroid was enlarged, both lobes equally, and pressing on the trachea, causing stridorous breathing. Slight pulsation in it, but no bruit was heard.

Lungs.—Some scattered rhonchi to be heard.

Heart.—Apex beat in the 5th space internal to nipple line. No bruit. Heart's action forcible and rapid, and pulsations can be felt in abdominal aorta and in the carotids ; the 1st sound prolonged in mitral area.

Pulse, 144 at the wrist, regular but feeble. During the course of the disease the count was taken from the apex beat, it ranged from 150 to 170.

Urine, 1030, normal.

Bowels confined.

Eye Symptoms. Absent.

Tremor very badly marked.

Progress.—Very severe vomiting, which began the day after admission, continued till the 5th of May in spite of all treatment. At first the vomit consisted of whatever food was given, and occurred only after meals ; later on, it was independent of nourishment, and was of a glairy mucoid description. There was a sweet, alcoholic smell off her breath ; this may have been due to some spirits of chloroform in her medicine, though it persisted for some days after the medicine was changed, so was probably due to acetone. Her mental condition got worse, and she became very restless, wanting to get up, tossing the bed-clothes off, and talking to herself. One could always rouse her, and she would answer fairly coherently, though she said she was always better, even when an attack of the vomiting was on her. On May 4th von Graefe's and Stellwag's eye signs were noticed, though not well marked. The pulsation in the thyroid became more visible, and a bruit, systolic in time, was audible. Her skin was fairly moist, but there was never any sweating. There were no disturbances of the skin. On the 5th the vomiting stopped, and she could

retain food by the mouth, otherwise no change. Exhaustion set in on the 6th, and she died on the 7th. The temperature ranged from 99° F. on admission to 100° F. on the 5th of May, and rose on the night of the 6th to 103° F., falling to 100° F. next morning, and rising to 101° F. just before death.

Treatment.—*T. strophanthus*, digitalin $\frac{1}{100}$ gr., with strychnin $\frac{1}{80}$ gr. hypodermically. *T. digitalis*, anti-thyroidin, hypodermically, 3 ii in 10 m doses every 3 hours. None of these had any effect on the pulse. Bismuth mixture and nutrient enemata. Ice bag over the præcordia served to give ease on a couple of occasions by calming the forcible cardiac action.

Post-mortem Examination.—Body much emaciated. Thyroid much enlarged; weight, 215 grammes. Both lobes were equal in size. The isthmus was large, and closely embraced the trachea. Thymus gland persistent, not very large. Heart small, normal; aorta, very small. Lungs: right, normal; left, small cavity in apex. Spleen, normal, adherent to diaphragm. Kidneys: right, normal; left, elongated, otherwise normal. Liver, somewhat fatty. Uterus and ovaries, infantile.

Brain not examined, nor the spinal cord.

Dr. F. C. Purser made sections of the thyroid gland, and reports there was an increase of fluid and dilatation of the spaces, and the fluid was much thinner than normal.

ART. III—*On the Relation of Foetal Heart-beat to Sex.* A Short Monograph. By J. SPENCER SHEILL, L.R.C.P. & S.I., L.M. &c.; late Assistant Master, Coombe Maternity Hospital.

SINCE it is not my intention in this article to discuss the theories of the evolution of sex, it matters not whether the sex of the offspring is determined by any peculiarity of the ovum or sperm, or by the state of nutrition, "genital superiority," or "comparative vigour" of either parent, or again, as Darwin suggests, "an inherited peculiarity;" but my endeavour will be to demonstrate—nature having turned the balance in favour of one or other sex in the foetus in utero—whether or not any reliable relationship exists between the sex and the frequency of the heart-beat in the unborn child.

The question, it is true, is not of any great practical importance, and no wise practitioner would imperil his reputation by predicting the birth of, say, a male child to a woman at present the mother of none but girls; but the subject is of scientific interest, and as most works on Obstetrics state that the normal foetal heart beats at the rate of from 120 to 150 per minute, the slower beat being probably that of a male child, it struck me that, with opportunities to observe hundreds of women in the Coombe Hospital, statistics of cases examined altogether under similar conditions would afford fair evidence as to whether any reliance is to be placed upon the statement that sex of itself influences the frequency of the foetal pulse.

In my list of cases, multiparas and primiparas, those in labour and those not in labour, those at term and not full term, were each considered separately, but with the exception of this differentiation all counts were made under exactly similar conditions, viz.:—By the same observer, when the patient was, and had been for some time previously, resting quietly in bed, and was not nervous or excited; care being taken to avoid making a count when uterine contractions were present or only just past, or after any very vigorous foetal movements had been felt. None of the patients were suffering from any condition which might cause deficient oxygenation of the blood, or had had any recent hæmorrhage.

Before commencing to make the observations, as the outcome of past experience, I laid down for myself the following rule:—In all cases where the foetal heart beats at the rate of 141 or less per minute, under the stated conditions, I shall predict the sex as *boy*, all of 147 and over as *girl*, and those falling between these two figures as *doubtful*.

The following figures—omitting fractions—show the results of the writer's investigations:—

Of some three hundred cases noted under the aforementioned conditions, including patients of all the various detailed classes—*i.e.*, those in labour and those not, &c.—the percentage of correct predictions was fifty-six; of these, counting only the women who were not in labour, the percentage of correct results rose to seventy-three, and, counting the primiparas

only, but ten per cent. of the children proved to be of the opposite sex to that expected. Of all the cases in which the foetal heart-count fell between 141 and 147 there were exactly as many males as females.

The deductions I have made as a result of these researches are as follows :—

The statement so frequently made in books on midwifery as regards the foetal heart and sex is quite unreliable and misleading. Practically, I have found that one is *almost*, if not *quite*, as likely to be wrong as right if guided solely by what is published.

But the marked increase in the percentage of correct results, when observing only women who were not in labour, shows that no matter how much care is taken to eliminate any factors, such as “pains,” &c., which might influence the heart-beat, the fact of the woman being *in labour* makes the count less trustworthy.

In the case of primiparas not in labour, the percentage of correct prophesies, rising to ninety, shows that under these particular conditions a fair amount of reliance may be placed on the theory relating to foetal heart and sex, and that the books would be approximately correct if they qualified their statements by saying that the count refers only to patients who are not yet in labour, and better still, if primiparas only were meant.

But in spite of the encouraging results obtained when dealing with the last-mentioned class of cases, and although the figures may be interesting, the disappointment, perhaps, of the parents if the prediction proved to be fallacious would far outweigh any little credit the attendant might gain if he were right, and my advice to the enthusiastic young practitioner would be summed up in the words, “a still tongue makes a wise head.”

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Electrical Methods in the Treatment of Affections of the Stomach and Intestines. A Practical Manual for Students and Practitioners. By GEORGE HERSCHELL, M.D. Lond.; Fellow of the Royal Medico-Chirurgical Society; Member of the British Electro-therapeutic Society; Senior Physician to the Queen's Jubilee Hospital; late Senior Physician to the National Hospital for Diseases of the Heart; Physician to the Welbeck Street Hospital for Diseases of the Nervous System, and to the Farringdon General Dispensary. London: A. Siegle. 1905. 8vo. Pp. 108 + iii.

THE germ of this neat and well-printed booklet originally saw the light in the *Journal of Medical Electrolgy and Radiology* in the form of a series of papers under the titular heading of "Practical Lessons in the Treatment of Affections of the Gastro-Intestinal Tract by Electrical Methods," between January and July of last year. The advisableness of inserting some new matter here and there has, of course, been recognised and acted on. The text comprises six chapters, preceded by an "introduction," and followed—we gratefully acknowledge—by an index. The pagination of the latter is separate—a feature which we have not noticed in recent works, and which seems to us to be the more natural arrangement. The headings of the various chapters are:—"Gastric Neurasthenia or Nervous Indigestion," "The Functional or Dynamic Disorders of the Gastric Secretion (Hyperchlorhydria, Hyperchylia, Hypochlorhydria, Anachlorhydria and Achylia Gastrica);" "Abnormalities of Gastric Sensation (Gastric Hyperæsthesia, Gastralgia, and Epigastralgia);" "Gastric Myasthenia and Atonic Dilatation of the Stomach;"

"Enteralgia, Chronic Enteritis and Constipation;" "Clinical Histories, illustrating the effects of Electrical Treatment upon properly selected cases." There are fifteen illustrations of electrical apparatus inserted in the text. The concluding chapter (Clinical Histories) gives eighty-two selected cases illustrative of the results of the author's electrical treatment. The extreme obstinacy of chronic gastric troubles is well known to every medical practitioner; who will also be ever ready to rejoice in the prospect of a new mode of treatment based on rational scientific theory, and, accordingly, promising progressively improving results. That "a man is always happy till he finds out that he has digestive organs," is a result of experience older than that of the witty nineteenth century cleric, and the gloomy effect on the "animal spirits"—whatever they may be—of even inappreciable functional derangements of the peripheral ends of the gastro-intestinal filaments of the vagi is well known to every physiological observer who has studied the phenomena dependent on that woeful barrier to human happiness—a hypertenuity of the internal skin. That the writer of this little volume has carefully studied his subject is evident. His results are, on the whole, decidedly encouraging, and his methods should surely be known to all medical practitioners. Accordingly, we regard it as our duty to recommend the volume to their best attention, and their duty to act on our suggestion by examining it for themselves.

City of Liverpool. Observations of the Medical Officer of Health upon the Report of Dr. R. J. Reece to the Local Government Board on Small-pox and Small-pox Hospitals at Liverpool, 1902-1903. Ordered by the Port Sanitary Authority and Hospitals Committee to be printed, 27th April, 1905. Liverpool: C. Tinling & Co. 1905. Folio. Pp. 23.

THE "Observations" of the Medical Officer of Health for Liverpool, Dr. E. W. Hope, contained in this official

document form a very powerful indictment of the conclusions arrived at by Dr. Richard Jas. Reece, one of the Medical Inspectors of the Local Government Board, on Small-pox and Small-pox Hospitals at Liverpool in the years 1902-1903.

Dr. Reece's Report to the Local Government Board dealt with three important matters—first, the administrative arrangements available for dealing with importations of small-pox into the city, and for preventing and limiting its spread; secondly, the administration of the hospitals; and thirdly and chiefly, the influence exerted by the hospitals themselves in the diffusion of small-pox by what has been called "Aerial Convection." On this last point Dr. Reece's conclusions are as follow:—

"(1.) Inhabited areas within a mile of each of the three Liverpool small-pox hospitals have suffered more severely from small-pox than the city as a whole.

"(2.) Exceptional incidence of small-pox within these areas has corresponded in point of time with the use of these hospitals for the treatment of acute small-pox cases.

"(3.) Broadly speaking, within these hospital areas the dwellings nearer to hospital have sustained a far heavier incidence of small-pox than those further away."

These conclusions appear to be sufficiently explicit and dogmatic, but Dr. Hope handles them very severely. He points out (page 11) that, in preparing his "spot-maps," Dr. Reece recorded not the actual number of cases of small-pox, but the different houses invaded. Thus, he ignored the "possibilities that a second or subsequent case in the same house may be due to infection from the first case in the house."

But it is in relation to spot-maps that Dr. Hope makes his most telling points against Dr. Reece's conclusions. Fazakerley Hospital is the most modern of the three Liverpool small-pox hospitals. It stands in the northern outskirts of the city on an open area of 118 acres, and its site was thoroughly approved by the Local Government Board for small-pox purposes. Dr. Reece shows by his spot-map that within the quarter-mile to half-mile zone

round the hospital the proportion of houses invaded was about fifteen times as great as it was in all the rest of Liverpool outside the three hospital areas. Dr. Hope replies that Fazakerley Hospital has only nine houses within the quarter-mile zone, and a total of 175 houses within a half-mile zone from the hospital. "There were only two houses invaded within the entire half-mile circle, and it is a wilful misuse of figures to prepare a table which suggests an enormous house invasion upon facts such as these."

Dr. Hope, however, is not content with this, but he proceeds to fight Dr. Reece with his own weapon—a "spot-map." He draws such a map for the Netherfield Road Hospital, which was formerly the hospital to which small-pox cases were sent, but its use for that purpose has been discontinued for many years, so that no hospital influence can explain the incidence of the disease in the quarter-mile zone indicated in Dr. Hope's spot-map. From this map the curious result is brought out that from the outbreak of small-pox on December 8, 1901, to November 9, 1903—a period of 23 months—the house-invasion per 10,000 houses in the Netherfield Road Hospital area was—within one mile of the hospital, 163.8; within three-quarters of a mile, 176.7; within half a mile, 199.8; and within a quarter of a mile, 311.7. The house-invasion per 10,000 houses in the rest of the city of Liverpool, including the small-pox hospital areas, was 96.3. Dr. Hope, with natural elation, says—"There is no reason to doubt the conclusions which would have been drawn had small-pox been dealt with in that hospital; the circumstance would have been cited as conclusive proof of aerial convection. But the presence of small-pox in the neighbourhood of the Netherfield Road Hospital is, in a very large proportion of cases, clearly traceable to other sources."

So the pretty quarrel stands. The late President of the Local Government Board, in answer to questions addressed to him in the House of Commons, stated that Dr. Reece has not condemned the Fazakerley

Hospital, and that the Medical Officer of the Local Government Board (Mr. W. H. Power) has not expressed any opinion in explanation of the facts recorded by Dr. Reece.

That aerial convection does play an important part in the diffusion of small-pox infection is borne out by many remarkable observations. That it is the sole agent in the diffusion of no resistant an infection as that of small-pox no one would be so foolish as to affirm. The truth probably lies midway between Dr. Reece and Mr. Hope. Meanwhile, it is incumbent on Public Health Authorities, in arranging for the hospital treatment of small-pox, to take due cognisance of the doctrine of the Aerial Convection of Small-pox.

Nothnagel's Encyclopedia of Practical Medicine. Vol. IX. Diseases of the Blood. By PROF. DR. P. EHRLICH, PROF. K. VON NOORDEN, DR. A. LAZARUS, and DR. F. PINKUS. Edited with additions by ALFRED STENGEL, M.D.; Professor of Clinical Medicine in the University of Pennsylvania. Authorised Translation from the German, under the editorial supervision of ALFRED STENGEL, M.D. Philadelphia and London: W. B. Saunders & Co. 1905. Pp. 714.

IN his preface Dr. Stengel points out that the articles comprising this volume are authoritative presentations of the more important scientific aspects of hæmatology, and do not pretend to fill the place of text-books of clinical hæmatology. Details regarding methods of examination have been omitted by the authors of the original articles, and the editor has considered it proper to add only such recent methods as had a bearing on the subjects discussed in the original text.

Three subjects are treated in detail in the seven hundred pages or so which make up this portly volume—they are in sequence, Anæmia, Chlorosis, and Leukæmia. The first is dealt with in two sections—Histology of the

blood, normal and pathological, by Professor Dr. P. Ehrlich, the Director of the Royal Institute for Experimental Medicine, Frankfurt-am-Maine, and Dr. A. Lazarus, Privat Docent in Internal Medicine in the University of Berlin; and clinical features of anæmia, by Dr. A. Lazarus.

The fine monograph on Chlorosis is from the masterly pen of Professor K. von Noorden, Physician to the Frankfurt City Hospital.

Leukæmia is dealt with under the headings "Lymphatic" and "Myeloid." Dr. Felix Pinkus, formerly of the University of Berlin, contributes the monograph on Lymphatic Leukæmia; Dr. A. Lazarus that on Myeloid Leukæmia.

Such is a brief summary of the contents of this volume, which it would be impossible to criticise at length. The authors' names are sufficient guarantee for the excellence of the work embodied in the pages before us. The editor reminds us that the teachings of Ehrlich and his pupils have occasioned not a little controversy, so that he has felt it necessary to refer to the views of some of the opponents. We are not sorry that he has taken this course, for the result is that we have in the English version of this splendid monograph probably the fullest account of the histology and pathology of the blood in existence.

Natural Science in Hygiene: or the Life-History of the Non-Bacterial Parasites affecting Man. By JAMES RODGER WATSON, M.A., B.Sc., M.D. (Edin.); Diplomat in Public Health (Univ. of Camb.). Bristol: James Wright & Co. 1905. Pp. 62.

THE want of a convenient text-book dealing with the life-history of the non-bacterial parasites affecting man has long been felt by those who are trying to keep abreast with the growth of knowledge in this important branch of science. We fear that the work before us will not

supply the need. It is too condensed, and is inadequate to the magnitude of the subject with which it deals. Dr. Watson appears to have the knowledge necessary to produce a more detailed work, and we should welcome the production of such a volume, especially if it should be well illustrated.

The Carbon Factor in Gout: "Hyperpyremia." By FRANCIS HARE, M.D., London, England; late Consulting Physician, Brisbane General Hospital; Visiting Physician, Diamantina Hospital for Chronic Diseases, Brisbane. Reprint from the *Medical Record*, June 17, 1905. New York: William Wood & Company.

THE author of this small brochure informs the reader regarding the genesis of his special view of the pathology of gout: "A long consideration of the laws of carbonaceous metabolism (in so far as they are known) has served to convince me that not infrequently the metabolic balance referred to is inaccurate—that in many circumstances decarbonisation is prone to fall behind carbonisation, with the result that carbonaceous material accumulates in the blood to an ultra-physiological or pathological degree." The "metabolic balance" referred to is the normal physiological condition of (assumed) "accuracy of balance between carbonisation and decarbonisation." Dr. Hare's idea is that this balance becomes occasionally tilted, and that the resulting circulatory derangement manifests itself in the phenomena of gout. The succeeding announcement is somewhat disappointing to the scientific seeker after knowledge: "The *a priori* probability that this occurs at times seems to me extreme, but the arguments in support cannot here be considered through lack of space." Needless to say, we would have preferred to have an opportunity of forming our own opinion of the mutual action and reaction of fact and inner consciousness (of Dr. Hare) to which the development of the original germs of this new theory of gout is due. The author has made himself responsible, not only

for the paternity but for the baptism of his pathological hypothesis. "To the hypothetical blood state implied I have for convenience applied the term 'hyperpyremia' (Greek, *πυρεμία*—fuel)." The announcement of a new idea of the origin of a specially interesting, and much discussed, disease has necessarily had the result of setting us thinking—so indefinitely, indeed, that, in the absence of the author's arguments in support of his own theory, our thoughts "cannot here be considered through lack of space"—so wildly do they roam over the whole domain of pathological chemistry!

A Text-Book on the Practice of Gynæcology for Practitioners and Students. By WILLIAM E. ASHTON, M.D., LL.D.; Professor of Gynæcology in the Medico-Chirurgical College, Philadelphia, and Gynæcologist to the Medico-Chirurgical Hospital, &c., &c. With 1,046 New Line Drawings illustrating the text by JOHN ALTENEDEK. Philadelphia and London: W. B. Saunders & Co. 1905. Pp. 1079.

PROFESSOR ASHTON, in his preface, places before his readers the reasons which have lead him to write the large volume before us, and also the guiding principles which he has followed in writing it. Put shortly, the author believes that there is a place for a practice of gynæcology which "aims to take nothing for granted in describing gynæcological diseases, and which not only states what should be done in every case, but also gives directions and illustrations so explicit that they may be intelligently and easily followed." Further, he has "been guided solely by the desire to present a treatise which shall give a thoroughly detailed account of the practice of gynæcology from the standpoint of the general practitioner and the student of medicine," and, therefore, he omits certain operations and methods of treatment adopted by other surgeons. He continues:—"The book is unusually large for a work on gynæcology, but it was impossible to lessen the number of pages and at the same time to give the

necessary technical details and space for the large number of illustrations." In other words, Professor Ashton's opinion is that it takes 1,079 large pages and 1,046 illustrations to teach the general practitioner and the student the author's opinions and methods of operating. We have no hesitation in saying that this is absurd. But few students or general practitioners require more than a tithe of the information on gynæcology which the book before us contains, and those few require not merely the undiluted practice of one man but a more comprehensive view of the opinions and practices of well-known gynæcologists.

This, in our opinion, being so, we do not propose to criticise Professor Ashton's book "from the standpoint of the general practitioner and the student of medicine," but to regard it as a very complete description of the teachings and practice of a single gynæcologist.

Judging Professor Ashton's work from such a standpoint, we have nothing but praise for it. The illustrations are excellent, the writing is clear, the style is good, and the teaching is sound. The book treats of many subjects to which works on gynæcology do not always refer, or if they do in but a few words. Chief amongst these may be mentioned—"The blood in relation to surgery," "The X-rays in gynæcology," "Hydrotherapy," "Indoor exercises," "Diseases of the ureters," "Cystoscopy," "Appendicitis," "Movable kidney." We think that in future editions a distinct improvement could be made by separating the sections dealing with operative measures from the sections dealing with pathology and non-operative treatment. The various operative procedures could then be all discussed *seriatim* and be advantageously prefaced by the chapters dealing with operative technique. As the book is constituted at present, operations and operative technique are scattered through it. Another point, the adoption of which the author might take into consideration, is that of references to medical literature. The fact that the book deals almost exclusively with the author's own practice renders perhaps unnecessary the extensive bibliographical lists that are to be found in

other books. Still there are many places in which references should be given. A book of nearly 1,100 pages without a single bibliographical reference is rather an anomaly.

The Rôle of Modern Dietetics in the Causation of Disease.

By J. SIM WALLACE, M.D. London: Baillière, Tindall & Cox. 1905. Pp. 87.

THIS is a collection of papers which have previously appeared in various journals, and so the chapters somewhat overlap; the number of references to the author's other works is also confusingly large.

The author considers that about 95 per cent. of the population has carious teeth and chronic or occasional indigestion, and as these troubles seldom occur amongst savages or anthropoid apes in their natural environment, and as acquired characters are not transmitted, he believes that they must be brought about by avoidable indiscretion, especially indiscretion in diet.

The author's line of argument can be illustrated by the following paragraph:—

"Thus when there are no teeth the child should have no solid food, and its instinct to suck should be allowed gratification at its mother's breast. When the front teeth appear, together with the instinct to gnaw, it should be allowed to gnaw as well as to suck. When the first molar teeth appear it should be allowed to supplement the gnawing and sucking, and to use them to grind or masticate its food. When it gets its second molars it should be allowed to bite off its food with its front teeth, and masticate it with its molars, for it has a complete set of teeth, and they are there to be used."

Some practical hints, such as the following, can be found in these papers:—

"The value of milk in the diet of children is at the present day largely over-estimated, and it should be distinctly recognised that it is an extremely unnatural food for children even about the age of two years."

"Solid food when first given to children, should be distinctly different in consistency from the liquid food to which they were previously accustomed, so that at an early age they may come to recognise the difference between solid and liquid food, and to treat it accordingly."

"Meat, fish, and poultry, tender or otherwise, according to the age and capabilities of the stomach, should be given in large pieces cut thin."

Atlas and Epitome of Operative Ophthalmology. By PROF. DR. O. HAAB. Edited by G. E. DE SCHWEINITZ. With 30 Coloured Lithographic Plates and 154 Text Cuts. London: W. B. Saunders & Co. 1905. Pp. 377.

THIS, the latest addition to Saunders & Co.'s well-known series of Atlases, is quite up to the high standard of excellence which has been maintained throughout the whole series. The illustrations, both coloured and uncoloured, which are the main feature of the book, are very good; the only criticism we would be inclined to make is that rather too large a number of the former have been expended in the portrayal of various cicatricial deformities. Still they are excellent and life-like representations, and show well both the original deformity and the results of operative interference. The text cuts are largely taken up with the demonstration of instruments. Those showing the various operations for advancement of tendons in cases of strabismus and the passage of sounds into the lacrymal canaliculi and nasal duct may be mentioned as specially useful.

The letterpress of this volume is rather more extensive than in most of those Atlases. The first eighty pages are taken up with general considerations regarding sterilisation, antiseptis, asepsis, and disinfection. What is said on these subjects is thoroughly sound. We are glad to see that operators are advised to wear some sort of mask over the mouth, to avoid infection of the wound by speaking. This is a precaution much more necessary for the ophthalmic than for the general surgeon, as in many cases the former has to speak frequently to the patient during

the operation, and his head is close to the wound. The description of the various operations is very fully given, some, perhaps, a little too fully, as, for, instance, in the part devoted to cataract operations. Here several pages are taken up with operations which are now obsolete and practically never performed. These are interesting, no doubt, but somewhat out of place in an Atlas. The book concludes with a good bibliography.

We can recommend this Atlas to all students, especially to those who intend making a study of ophthalmic surgery. It should prove very useful also to those who are engaged in the teaching and demonstration of operations on the eye.

The Medical Diseases of Egypt. By F. M. SANDWITH, M.D.,
F.R.C.P. London: Henry Kimpton. 1905.

THE present volume constitutes Part I. of a projected work on the Medical Diseases of Egypt, and forms a handy volume of a little over 300 pages. The name of the author is in itself a guarantee of the soundness of the information contained, for few English physicians have had more ample opportunity of studying Egyptian diseases and the races of Egypt than has Professor Sandwith. His name is, indeed, already widely known by his numerous communications to the various medical journals upon tropical diseases, and the substance of many of these now finds an appropriate place in a systematic treatise.

After a brief introduction, in which the author reviews the history of medicine in Egypt, and refers to the origin of the famous Kasr-el-Alny Hospital, he proceeds to deal with the infectious diseases. His chapters on typhus, enteric and relapsing fever form most interesting reading, and are illustrated by the records of numerous clinical cases. Perhaps the most striking points in connection with them is their extreme prevalence, their high rate of mortality, and the frequent occurrence of complications. It is also worthy of note that enteric fever finds its largest number of victims amongst the English residents, owing apparently to the insanitary condition of dwelling-houses and barracks, and is, on the other

hand, only occasionally found amongst the natives. Small-pox it appears, however, is still very common amongst the natives of both Egypt and the Sudan, and it is interesting to learn the steps which the Government have taken to counteract the scourge. The practice of vaccination is largely in the hands of the country barbers, who are brought up to Cairo from time to time to learn the art, and they now receive a reward for each successful vaccination. In 1903 nearly 420,000 vaccinations were successfully performed, as compared with under 29,000 twenty years ago.

The second half of the book is devoted to the subjects of plague, bilharziosis, ankylostomiasis and pellagra, the chapter on plague being especially full. An account is given of some of the earlier plague epidemics in Egypt, and especially of one which occurred about 1836. During that epidemic there was a considerable strife between medical men as to whether the disease was or was not contagious, and many of those who disbelieved in its infectious nature put their faith to very practical tests. Thus, one physician "took the sheet off a dying plague patient and wore it for 48 hours," and many others inoculated themselves with pus from plague buboes. Some of these last-named succumbed to their scientific zeal, and with their death their theory fell to the ground. In the same article a very good account is given of the preventive methods now adopted by the Government Sanitary Department in places where plague has broken out. The method is a most thorough one, and has been attended with signal success.

In the chapters on ankylostomiasis and pellagra the author is very much at home. He lays very great stress on the entrance of ankylostomum larvæ through the skin, and apparently believes that most of the peasants are infected in that way. He also insists on the value of a differential leucocyte count in cases of doubtful diagnosis, though his statement concerning the leucocytes on page 262 is too vague to have any meaning. As treatment for the condition, thirty grains of thymol administered in two doses is now found to be sufficient, instead of the more severe doses adopted some years ago.

In conclusion, we may say that the entire work is written in an easy and most pleasing style. Throughout, great

attention is paid to the importance of clinical symptoms as a means of diagnosis, and due place is also given to prophylactic measures and treatment. We can heartily recommend it, not only to students of tropical medicine, but to all who are interested in the behaviour of familiar diseases amid surroundings other than our own.

The Third Report of the Advisory Board for the Army Medical Services on the Treatment of Venereal Diseases and Scabies in the Army. Printed by Eyre & Spottiswoode, printers to the King's Most Excellent Majesty, and to be purchased, either directly or through any bookseller, from Wyman & Sons, Ltd., Fetter Lane, E.C. ; or Oliver & Boyd, Edinburgh ; or E. Ponsonby, 116 Grafton Street, Dublin. Price One Shilling.

THIS report occupies fifty-one folio pages, to which an appendix of six pages is attached, containing examples of leaflets issued by the various Continental Institutions to men on their discharge after treatment for venereal disease—instructing them as to the sequelæ that may develop, and warning them under such circumstances to consult a medical man. It also explains the manner in which they might accidentally infect innocent persons.

This Third Report consists of the result of Major C. E. Pollock's investigations on the methods of treatment employed in foreign military and civil hospitals. These are arranged according to the countries visited—viz., France, Germany, Austria-Hungary, Italy, Russia, Sweden, Denmark, and Brussels. They are replete with interesting and instructive information as to the stringent measures adopted in foreign countries for the suppression of the social evil. They form a striking contrast with the inefficient provisions made by the Government of this country for the prevention of syphilis, and to provide sufferers from venereal disease, more especially those poorer civilian classes, with the means of obtaining adequate treatment—for example, in Sweden each community is obliged to provide free treatment for any person suffering from a venereal disease. In Denmark there are

legislative measures in force for the punishment of any person who knowingly communicates venereal disease.

In many of the foreign centres visited by Major C. E. Pollock, public facilities of the most complete character are afforded to patients suffering from scabies, both for the cure of the disease and the thorough disinfection, at the same time, of their clothes. Such facilities as these are lamentably wanting in Dublin.

This series of Reports will be found well worth careful perusal.

Indigestion. The Diagnosis and Treatment of the Functional Derangements of the Stomach. With an Appendix on the Preparation of Food by Cooking, with especial reference to its use in the Treatment of Affections of the Stomach. By GEORGE HERSCHELL, M.D. Lond.; Fellow of the Royal Medico-Chirurgical Society; Senior Physician to the Queen's Jubilee Hospital; late Senior Physician to the National Hospital for Diseases of the Heart; and Physician to the West End Hospital for Diseases of the Nervous System. Third Edition, entirely re-written. London: Henry J. Glaiser. Chicago: W. T. Keener & Co. 1905. 8vo. Pp. 293.

THIS handsome volume has secured a recognised position in contemporary medical literature, as is fully proved by the facts that it has already reached a third edition, and that it now occupies the interested attentions of publishers on both sides of the Atlantic Ocean. There is no doubt that the plague of indigestion is one of the specially productive agents in the manufacture of the misery of civilised life. A philosophic wit has noted before now that a man is always happy till he finds out that he has *digestive* organs—one of the most cogent items, probably, that can even now be offered in illustration of the inspired aphorism of the Wise Man, which states that the increase of knowledge leads to increase of sorrow. The progressively accumulating experience of this hurried, and worried, and (consequently) neurasthenic age of ours rather tends—at least with some—to carry round the curvilinear direction of physico-metaphysical progress to the

standpoint occupied some few centuries ago by the "Father of Modern Chemistry," Jan Baptista van Helmont, who located the governing *Archeus* of the human organism (the *soul* of everyday writing and conversation) at the *pyloric orifice* of the stomach. It is a truly sensitive region, that; and every derangement of normal mechanism is accompanied by—not merely local uneasiness, but a general depression of the "animal spirits," to a degree which seems to be peculiar to itself. This fact very probably accounts for the genesis and enunciation of van Helmont's opinion. A very striking contrast is indeed offered to every clinical observer by the difference in degree of influence of disease of the supra- and sub-diaphragmatic viscera, respectively, on the temper and hopefulness of the patient.

Accordingly, the medical man who produces and places before the world a sound and reliable book on the subject of indigestion is a true benefactor of his species, and has established a better claim on the admiring recognition of his contemporaries and posterity than the heroes of great victories (or slaughters), whether military or naval. In this department the value of Dr. Herschell's work has already been duly estimated by his contemporaries—an estimate which we cordially re-echo. The present issue has been practically rewritten; a procedure which was rendered necessary—with the object of presenting the reader with a summary of recent advances in this field of medical investigation. The introduction of a section dealing with the cooking of the food of the dyspeptic is one of the special and most important features of this volume, which in its present form is an excellent vade-mecum for the busy practitioner.

The Diseases of Infancy and Childhood: for the use of Students and Practitioners of Medicine. By L. EMMETT HOLT, M.D., Sc.D., LL.D.; Professor of Diseases of Children, College of Physicians and Surgeons, New York, &c., &c. With 241 illustrations. Third Edition. Revised and Enlarged. New York and London: Appleton & Co. 1906.

DR. EMMETT HOLT is to be congratulated on this issue of his work in a revised form. It is one of the most scholarly

treatises on diseases of children, and gives a very complete picture of this large subject. In comparison with the majority of text-books on these peculiar ailments it will be found to take a very high rank. We notice a few subjects which might be dealt with more fully in future editions, but on the whole there is extremely little to find fault with. Chapters would be most useful on rheumatoid arthritis of children, on functional ataxy, which is often so puzzling, and on some of the speech defects, notably idioglossia.

The chapter on marasmus is poor and devoid of much information. These are, however, imperfections which may be found amidst the finest work, and, no doubt, have merely escaped Professor Holt's notice.

It may be classed amongst the soundest treatises on children's diseases in the English language, and will be consulted with profit by all readers. As in former editions, the greatest value of the volume lies in Dr. Holt's original work, sound opinions based on his own experience and the prominence given to pathology.

The Diseases of Children. Medical and Surgical. By HENRY ASHBY, M.D. Lond., F.R.C.P., Physician to the Manchester Children's Hospital, Lecturer and Examiner in Diseases of Children, Victoria University; and G. A. WRIGHT, B.A., M.B. (Oxon.), F.R.C.S. Eng., Surgeon to the Manchester Royal Infirmary, Consulting Surgeon to the Children's Hospital. Fifth Edition. Longmans, Green & Co. 1905.

WE are glad to welcome a revised edition of Dr Ashby's well-known work on diseases of children. It is one of the most reliable of our text-books. In carefully going over most of the important points in such a work one is struck by the amount of material it contains. Dr. Ashby is devoted to his subject, and misses almost nothing which is of value. For a work of reference it is especially useful, for a very full index safely guides the inquirer to a paragraph replete with sound information.

The combination in one volume of Medicine and Surgery is a very difficult matter, but we think in this instance it is well done, and its utility quite justifies the union.

The illustrations are very numerous, and are especially interesting. We can most highly commend this work of Ashby and Wright as a thoroughly sound, practical treatise on these puzzling diseases.

A larger volume with larger print would greatly improve the work.

] *RECENT WORKS ON MATERIA MEDICA.*

Materia Medica and Therapeutics. By J. MITCHELL BRUCE, M.D. New and enlarged Edition. Forty-seventh Thousand. London: Cassell & Co. 1905. Pp. 632.

THIS excellent manual has attained a well-deserved success, and a circulation of 47,000 copies satisfactorily attests the favour which it has met.

In the preparation of the present edition the work has been subjected to thorough revision, and brought up to the level of our latest knowledge.

Among the additions is an account of the *Materia Medica* and *Therapeutics* in the Indian and Colonial Addendum to the B. P.

Taking it all in all, we regard Dr. Bruce's work as the best in the market for the average student, and the author has completely succeeded in his endeavour to make pharmacology and therapeutics a rational, intelligible, and agreeable subject of study.

The second portion of the book—viz., that dealing with general therapeutics—is particularly well and lucidly presented.

We recommend any student who possesses Dr. Bruce's work to commence by carefully reading Part II. He will thereby gain some insight into the physiological action and rational use of remedies, and so be more likely, and the better prepared, to enter upon the study of *Materia Medica*, in its restricted sense, with profit and interest.

A Text-Book of Materia Medica. By C. R. MARSHALL, M.D. London: J. & A. Churchill. 1905.

DR. MARSHALL'S reputation as a skilled pharmacologist and chemist leads us to expect an instructive and accurate text-

book from his hands. This expectation is admirably fulfilled in the work under notice, and the chemistry of the drugs has been brought into line with the most recent investigations.

In treating of inorganic substances, Dr. Marshall makes free use of the ionic hypothesis which certainly offers some facilities in expounding the physiological action of chemical drugs.

It must, however, be allowed that the book is more largely a text-book of *Materia Medica* than of pharmacology and therapeutics. In this respect it is scarcely so well adapted for the use of medical students as such manuals as those of Whitla, Hale White, and Mitchell Bruce.

The illustrations, all of which, except six, are original, are exceptionally good and artistic, and accurately represent all the important crude drugs

YEAR-BOOKS FOR 1906.

1. *An Almanack for the Year of Our Lord 1906.* By JOSEPH WHITAKER, F.S.A. London. 8vo. Pp. 792.
2. *Whitaker's Peerage for the Year 1906.* Being a Directory of Titled Persons. London: J. Whitaker & Sons. 8vo. Pp. 724.
3. *Who's Who.* 1906. London: A. & C. Black. 8vo. Pp. xx + 1878.
4. *Who's Who Year-Book for 1906.* London: A. & C. Black. 1906. 8vo. Pp. 132.
5. *The Englishwoman's Year-Book and Directory, 1906.* Edited by EMILY JANES. Twenty-sixth Year. London: A. & C. Black. 1906. 8vo. Pp. xxiii + 402.

We welcome these annual publications, because of the variety and general accuracy of the information contained in their pages.

1. This is the thirty-eighth annual issue of "Whitaker's Almanack," which (the Editor claims) is "the best, the most complete, the cheapest, and the most useful" Almanack in existence. Anyone referring to the Table of Contents in the forefront of the volume and to the Supplement, which runs

from page 473 to page 792, will come to the conclusion that there is much to justify the Editor's opinion. In the Supplement will be found a remarkable article on the Empire of India, a full account of the other British dominions beyond the seas, a political history of the world in 1904-1905, and an account of geographical progress and territorial changes in the past year. These are only a few of the many interesting subjects which are dealt with in what is really a wonderful book.

There is little open to adverse criticism in "Whitaker," but we cannot but regard the list of British Holiday and Health Resorts at page 751 as very incomplete, and the information in many cases as meagre in the extreme. Ireland is represented in this list by only Greystones and Portrush. If the Editor will consult the second volume of the "Climates and Baths of Great Britain and Ireland," published by the Royal Medical and Chirurgical Society of London in 1902, he will be able to give his readers much fuller information about British and Irish Health Resorts.

2. "Whitaker's Peerage" has passed its nonage, the present issue being the tenth. The list of promotions shows 133 elevations to either a first or an additional knighthood, and 265 elevations to the rank of Commander, Companion or Member. As an instance of the precision with which the work is edited we may mention that at page 79 the following paragraph appears under the heading "The Royal Family":—"H.M. Maud, Queen of Norway (H.R.H. Princess Maud Charlotte Mary Victoria of the United Kingdom), V.A., a Lady of Justice of St. John of Jerusalem; *born* Nov. 26, 1869; *married* July 22, 1896, to H.R.H. Prince Charles of Denmark, now H.M. Haakon VII., King of Norway (Christian Friederick Karl Georg Waldemar Axel, G.C.B., G.C.V.O. [both Hon.], Hon. Com. in Brit. Navy, 2nd son of the Crown Prince of Denmark; *born* Aug. 3, 1872); elected King of Norway, 1905.

"1. H.R.H. Olaf, Crown Prince of Norway (Prince Alexander Edward Christian Frederick of Denmark); *born* July 2, 1903."

The election to the throne of Norway of Prince Charles of Denmark, husband of the King's daughter, Princess Maud, was

definitely announced just as the sheet containing their names was passing through the press—nevertheless, the alterations were made and the paragraph was published as we have quoted it.

In reference to the Royal Family, an interesting table of His Majesty's relatives (pages 78 to 91) includes 269 living blood-relations of King Edward VII.

Turning to the entries of some familiar Irish names, we find that the honours bestowed on His Majesty's birthday (November 9) are duly gazetted—a further proof how up-to-date the volume is.

3. "Who's Who" increases in value as a national biography year by year. The issue for 1906 includes occurrences which took place up to September 30, 1905—a wonderfully recent date when one considers the size of the work (1,878 pages of close print) and the vast number of the biographies it contains. With far-seeing judgment the Editor determined to enhance the value of the book as a work of reference by recording the number of a man's sons and daughters, his motor and telephone numbers, and his telegraphic address, when such existed. A very general response to the Editor's request for these particulars shows how widely his opinion as to the value of their insertion has been endorsed.

4. From time to time the Tables which formed the first part of *Who's Who* have been omitted, both for reasons of space and in order that the work might be exclusively a Biographical Annual. These Tables, with many fresh and interesting additions, are now issued as a supplementary, or, more correctly, a separate book under the name of *Who's Who Year-Book*.

When we reviewed these works in the number of this Journal for January, 1905 (Vol. CXIX., Third Series, No. 397), we animadverted in strong terms on the insertion at pages 47 and 48 of the *Who's Who Year-Book* for that year of lists of "some leading London specialists," which we characterised as a flagrant advertisement. It is with much pleasure that we notice the disappearance of this Table from the issue for 1906 "at the request of the British Medical Association,"

as the Editor explains in his prefatory "Note." The hospital staffs of the London Hospitals still appear at pages 46 to 52, according to our opinion, in somewhat questionable taste.

In the list of University Degrees at page 131 the inaccuracies to which we directed attention last year still find a place ; nor have the omissions we supplied been inserted. For the Editor's information we reproduce the passage from our review which deals with this point :—

" 'B.Eng.' is given as the abbreviation for Bachelor of Engineering in the University of Dublin—the correct initials are 'B.A.I.'—namely, 'Baccalaureus in Arte Ingeniariâ.' There is a doctorate of Science at Oxford. The degrees in Midwifery and in Dentistry are omitted. The former exist as M.A.O. and B.A.O. in several Universities, the latter as M.Sc. Dent. in Dublin University and as B.D.S. in the University of Birmingham."

5. The Editor of *The Englishwoman's Year-Book*, Miss Emily Janes, is to be congratulated on the publication of the twenty-sixth issue. The four hundred pages which compose the work contain so much and such varied information that it would be impossible to do it justice in a short notice. We shall, therefore, content ourselves with a reference to the Section on Medicine, Pharmacy, and Dentistry, which will be found at pages 110 to 130, inclusive. Surely, "Dentistry" should take precedence of "Pharmacy" in the heading of this Section. Also the School of Physic in Ireland, Trinity College, Dublin, is omitted from the list of Medical Schools open to women on equal terms to men, which list is given at page 112. There is a useful Directory of Medical Women in this same Section.

We heartily re-echo the Editor's eloquent words in the closing sentence of her Preface—"If *The Englishwoman's Year-Book* can do anything to impress a sense of responsibility on the women of to-day with regard to the education of the young, the choice of a profession, or obedience to a vocation, the claims of the industrial classes, and of the weak, the helpless, and the fallen, the task of compiling the book will bring its own reward." Surely, it *has* brought its own reward.

The Diagnosis and Modern Treatment of Pulmonary Consumption: With special reference to the early recognition and the permanent arrest of the disease. By ARTHUR LATHAM, M.A., M.D., Oxon., M.A. Cantab., F.R.C.P. Lond.; Author of the Prize Essay on the erection of His Majesty's Sanatorium; Senior Assistant Physician and Lecturer on Practical Medicine at St. George's Hospital; Assistant Physician at the Brompton Hospital for Consumption and Diseases of the Chest. Second Edition. London: Baillière, Tindall & Cox. 1905. Pp. 224.

OF the many works on pulmonary consumption which have appeared within recent years this is certainly one of the most useful. Dr. Latham's treatment of the subject of early diagnosis is brimful of suggestion, and he deals comprehensively with the varied contingencies which may arise in the course of the disease.

In the matter of sanatorium treatment Dr. Latham is a disciple of Brehmer and Walther rather than of Dettweiler. He advocates the more general use of graduated exercise, whenever it does not tend to exacerbate the disease, and that the patient, when rest is indicated, should lie in the seclusion of his own room rather than that he should have recourse to Liegehalle or verandas.

As regards food, he pleads that it should be not merely abundant, but varied, and that milk, butter, fat and vegetables should occupy an important place in the dietary.

We welcome the second edition of this excellent handbook.

The Journal of Balneology and Climatology. Edited by LEONARD WILLIAMS, M.D., and SEPTIMUS SUNDERLAND, M.D. London: John Bale, Sons & Danielsson, Ltd.

THIS journal, which is published quarterly, contains reports of the proceedings of the meetings of the British Balneological and Climatological Society. Articles appear in its pages on the climate and therapeutic potentialities of spas and health-resorts all over the world, and from these papers much information may be gathered, which it would be difficult to obtain elsewhere.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR THORNLEY STOKER, M.D., F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF MEDICINE.

President—SIR WILLIAM SMYLY, M.D., P.R.C.P.I.
Sectional Secretary—F. C. PURSER, M.D.

Friday, Nov. 10, 1905.

JAMES LITTLE, M.D., in the Chair.

Solubility as applied to Urine; and the Theory of Gout.

DR. WALTER SMITH made a communication upon the above subjects. He said:—There are two kinds of molecules in urine—(a) non-ionised, represented in normal urine chiefly by urea and kreatinin; in pathological urines, by sugars and proteids; (b) ionised—i.e., dissociated molecules—viz., the ordinary salts of the urine. Attention was drawn to the rules for solubility of the classes of urinary salts, chlorides, phosphates, &c., and the bearing of these rules upon clinical phenomena. In respect to the uric acid theory of gout, the writer entirely associates himself with those who feel convinced that this popular theory is inadequate, and, what is worse, misleading in practice. Uric acid, *quoad* physiology and pathology never behaves otherwise than as a *monobasic* acid. According to the careful researches of His and Paul the solubility of uric acid in water at 18° C. is 1 in 40,000—a much lower estimate than that usually accepted. Dr. Smith pleaded for a wider and more catholic conception of gout than that popularly adopted. We are still ignorant of the true pathology of gout, and, in respect of dietetics, when we

enjoin our patients to take freely such foods as milk, cream and cheese, which are almost free from purin bodies, and to be sparing of food which contains a large amount of purin bodies—e.g., meats, thymus, and pancreas—we embody almost all there is to be said.

THE CHAIRMAN, in discussing the paper, referred to the belief in the uric acid theory of gout which was so firmly fixed in the lay mind.

DR. TRAVERS SMITH said it was hard to reconcile some obscure alimentary toxin as the cause of gout with the hereditary character often shown by the disease, and with the fact that gout in females is rare till after the menopause, though there were the same dietetic errors before as after.

DR. BENNETT also spoke.

Notes on a Year's Asylum Work.

DR. W. R. DAWSON read a paper on the above subject. [It will be found at page 428 of Volume CXX., December, 1905.] He dwelt chiefly on hereditary predisposition, which he believed to be greater than the usually accepted average, on cases of dementia præcox, and on the atropin treatment for alcoholism.

The paper was discussed by Drs. TRAVERS SMITH and KIRKPATRICK.

SECTION OF OBSTETRICS.

President—R. D. PUREFOY, F.R.C.S.I.

Sectional Secretary—HENRY JELLETT, M.D., F.R.C.P.I.

Friday, November 17, 1905.

The PRESIDENT in the Chair.

The President's Address.

The President's Address dealt with the early history of the Obstetrical Society, which was inaugurated in November, 1838, under the Presidency of Doctor Ivory Kennedy, Master of the Rotunda Hospital, in one of the rooms of which its meetings were held for nearly 25 years subsequently. In 1862 the constitution of the Society was altered, and the late Dr. Geo. H. Kidd became Secretary. The objects of the Society were primarily the study and elucidation of obstetrics and gynæcology; further, the investigation of the structure and diseases of females and their treatment, the physiology of reproduction, with its comparative anatomy,

fœtal structure and physiology, infantile development and disease, and medical jurisprudence. The names of many of the distinguished obstetricians and gynaecologists were recalled, and allusions were made to their writings, especially those of Dr. Churchill and Dr. McClinton. The President concluded by quoting the lines :—

“ Yet do thy work, it shall succeed
In thine or in another day;
And if denied the victor's meed
Thou shalt not lack the toiler's pay.

“ Faith shares the future's promise: Love's
Self-offering is a triumph won,
And each good thought or action moves
The dark world nearer to the Sun.”

The Results obtained in the Treatment of Eclampsia in the Rotunda Hospital.

DR. DE LA HARPE, by special permission of the Council, then read a paper on the above subject. He brought forward statistics of the hospital for the past 13 years. These have not been published before, and consist of a series of 71 cases treated by morphin injections and exclusively palliative measures; 12 died, a percentage of 16.9, results which have never before been approached by any former published statistics of the hospital. He warmly advocated the more general adoption in practice of the Rotunda methods, which briefly consists of—(1) Injections of morphin up to 2 grains in 24 hours; (2) thorough lavage of the stomach by means of siphon-tube; (3) purgation by castor oil and croton oil combined, these being passed through the tube before its removal; (4) thorough lavage of lower bowel; (5) keeping the patient lying on the side to prevent fluids formed in the mouth entering the lungs and causing the so-called œdema of the lungs to occur; (6) poultices to loins; (7) plenty of saline fluid to be administered through stomach and rectal-tubes, or injected beneath the breasts. No operative interference of any kind is considered advisable. Vapour baths and hot packing are not used; neither is nourishment given during the acute stage.

SIR ARTHUR MACAN said that the treatment by morphin was well known to him, even before Sir William Smyly was Master of the Rotunda. One reason why he did not adopt the morphin treatment was that he was satisfied with the results obtained by the treatment used while he was Master. This was a large turpen-

tine enema, and chloroform to begin with, followed by chloralhydrate per rectum, as much as 3ii in three or four hours. The sweating treatment was not much used, but since then he had used the hot air bath with very satisfactory results. He thought that the profession almost universally recognised that the termination of labour was a very important point in the treatment. For the use of dilators, Cæsarean section, &c., all pointed to a belief in the efficacy of delivering the woman, and a non-belief in the efficacy of the morphin treatment.

DR. HORNE said that to compare statistics of twenty-five years ago with statistics of the last ten or fifteen years was very erroneous, owing to the advent of Listerism, by which the mortality had been greatly lessened. He would not like it to be laid down that there was any routine treatment for eclampsia. Every case had to be treated on its merits and its condition on admission. He related a case which had occurred in the National Maternity Hospital this year, remarkable from the fact that it commenced in the fifth month. He had hoped to have learned the cause of the eclampsia, but it was passed over in the paper by saying that it was due to an "auto-intoxication." No special form of treatment could be relied on, and we must be prepared to use morphin, or, in certain cases, Cæsarean section, vaginal section, Bossi's dilator, &c.

DR. JELLETT said he would have liked Dr. de la Harpe to have gone into the question of the operative treatment of eclampsia. He was in thorough accord with Dr. Horne that no fixed line of treatment could be carried through in every case, nor did he believe that any one theory or set of causes would be found which could be laid down as the cause of eclampsia. One class of cases would be found to be due to one set of causes, &c., and treatment could then be classified accordingly. He said he was interested in the radical treatment of eclampsia, principally owing to the fact that he had been represented by Dr. Herman, in a paper read before the Medical Society of London, as having recommended such treatment at a time when he was distinctly opposed to it. Since then, in view of more modern statistics than those quoted by Dr. Herman, he was inclined to look on this treatment with more favour in serious cases. He quoted some of these statistics. He would not argue that radical treatment was the right one to adopt in all cases, but he did think that there were grounds for taking it into consideration, and for considering whether, in cases that appeared to be severe,

the radical treatment of emptying the uterus should not be adopted from the start.

DR. HASTINGS TWEEDY said that he considered it a pity that one line of treatment could not be followed, as the cases were few in number. So long as we believe that no hard and fast line of treatment should be followed, we should be working in the dark. No useful statistics could be compiled, and one could not say what was the best line of treatment to adopt. He believed that the infrequency of eclampsia in Dublin was due to the habits of the people. In hot countries people accustomed themselves to very little fluid, but in Ireland the women drank a good deal of tea, &c. As to causation, he did not think that our knowledge of treatment would be brought much forward by knowing what the poison was. We had fair grounds for saying it was a toxæmia in the system. We saw lots of toxæmia, which just fell short of eclampsia, headaches, drowsiness, dulness, &c. He considered that the Master of any hospital should be very careful to include in his statistics every form of fit that came in, except epilepsy, as eclampsia.

DR. NEILL said he had seen a good number of cases of eclampsia in the Coombe Hospital. In one remarkable case the child was lying transverse, and as soon as the malposition was corrected the eclampsia ceased. The other cases were treated with morphin. Some of them were very bad, but all got well. Two or three minims of croton oil and vapour baths were given in every case.

DR. GIBBON FITZGIBBON said that one point which had been largely ignored was the question of purgation. It was the treatment adopted in combination with the other palliative measures, and even in those cases where radical treatment was undertaken. In the morphin treatment a large amount of purgation was gone in for. The bowels and stomach were washed out, and sometimes up to seven minims of croton oil were given to clear out the bowels. Sinclair and Johnston reported a series of sixty-three cases occurring from 1847 to 1854. Among those three or four which were probably epileptic were included in the recoveries. There were thirteen deaths, but a certain number were certainly due to septicæmia. In those cases the treatment practised for the first five years was free venesection, and large enemata and purgatives were also given. In the last two years of that series venesection was continued, but the purgation was left out, and there was a considerably higher death-rate. He thought the

question of purgation was a good deal neglected, and deserved more attention than it received.

THE PRESIDENT said that he desired to add his quota to the praise already bestowed on the paper to which they had just listened. It is plain, from a study of the old Masters' books in the Rotunda Hospital, that free venesection was the routine treatment of puerperal eclampsia for nearly a century after the opening of the hospital, and in many of the cases, even those admitted in coma, recovery took place. After the discovery of chloroform it also came into use, sometimes alone, sometimes combined with venesection. Dr. Atthill records an interesting case in which chloroform produced no effect in mitigating the seizures till blood was drawn, and subsequent recovery ensued. In one case of convulsions in a primipara far advanced in pregnancy, he injected chloral subcutaneously, and recovery followed. No method of rapid emptying of the uterus had ever commended itself to the speaker, though he is firmly convinced of the wisdom of expediting delivery by any gentle methods available, such as the use of forceps when the head is easily within reach. He had tried venesection, sometimes alone, sometimes followed by intravenous saline injection, but without success, possibly because the patients were beyond the reach of any treatment.

DR. DE LA HARPE replied.

Card Specimens.

DR. TWEEDY showed the following card specimens :—(a) Eleven myomatous uteri removed by abdominal hysterectomies ; (b) myomata removed from three uteri abdominal myomectomies ; (c) one myoma of cervix ; (d) one cancer of body uterus—Wertheim's operation ; (e) two cancers of cervix—vaginal hysterectomies ; (f) one epithelioma of vulva ; (g) four ovarian cysts ; (h) two ovarian dermoids ; (i) one ovarian cancer ; (j) diseased tubes removed from four patients ; (k) three tubal pregnancies.

The meeting then adjourned.

SECTION OF PATHOLOGY.

President—JOSEPH O'CARROLL, M.D., F.R.C.P.I.

Secretary—PROFESSOR WHITE, F.R.C.S.I.

Friday, November 24, 1905.

The PRESIDENT in the Chair.

Aneurysm of Aorta.

THE PRESIDENT and DR. EARL showed an aneurysm which came off the aorta a little above the aortic valve. It lay between the aortic arch and the base of the heart, and pressed on and flattened the pulmonary artery. Hypertrophy and dilatation of both chambers of the right side of the heart were present.

PROFESSOR McWEENEY described a case in which there was an aneurysm in the thickness of the wall of the heart, having started near the sinus of Valsalva, corresponding to the left posterior cusp of the aortic valve, and penetrating for a distance of three inches the septum and adjoining part of the wall of the ventricle. It had produced great necrosis of the heart muscle. The heart was enormously hypertrophied, weighing thirty-one ounces. The clinical diagnosis of incompetence, and perhaps stenosis of the aortic orifice, was perhaps correct. He called attention to the fact that it had recently been found possible to produce aneurysms in animals experimentally by the continual injection of extract of supra-renal capsule; therefore, it would appear that one of the pathological factors in the production of aneurysm would be some toxin, with a capacity for raising the arterial pressure.

Lymphosarcoma of the Mediastinum.

MR. SETON PRINGLE showed a specimen of lymphosarcoma of the mediastinum. The patient, a man of thirty years of age, had for eight weeks before death presented the following signs and symptoms:—A firm œdematous swelling of the upper thorax, head and neck more marked on the right side, greatly distended veins on the arms, dyspnoea, dysphagia, cyanosis, and an area of dulness behind the manubrium and upper part of the gladiolus sterni, and extending two inches beyond the right sternal margin. All these signs gradually increased in severity, and a left pleural effusion developed some days before death. At the *post-mortem* the growth was found extending from the arch of the aorta

to the upper border of the sternum; it also extended back on either side of the trachea, and on the left side pressed on the œsophagus, while the right lung was extensively infiltrated, and adherent to the growth above the root. The innominate and left common carotid were embedded in the tumour, the two innominate veins were stretched over it, the right in one place being almost encircled by the growth, the superior vena cava was practically surrounded, and the vena asygos major could not be separated from the tumour mass. The pericardium and left pleura were distended with fluid; there was no ascites or œdema of the legs, no enlarged glands could be found, the spleen and liver were normal. Mr. Pringle called attention to (1) the very rapid growth; (2) the fact that the pulse was equal and synchronous in both radials although the innominate artery was embedded in the growth, and the left subclavian free; and (3) the presence of recent pleuritic adhesions on the right side, that is—the side on which the lung was involved.

The PRESIDENT spoke, and Mr. PRINGLE replied.

Lymphosarcoma.

DR. T. G. MOORHEAD exhibited a lymphosarcoma of the anterior mediastinum. The patient from whom the specimen was obtained had first noticed an enlargement of the glands in her groin, neck, and axillæ two years previously. When first seen in May, 1905, she presented the typical appearance of Hodgkin's disease, except that there was no splenic tumour. The leucocytes were reduced to 3,000 per c.m., and showed a relative excess of eosinophiles and hyaline cells. When seen again in August, 1905, her condition was unchanged, but twenty days later she returned with the glands swollen to five or six times their former size, and with distinct evidence of thoracic involvement. At the *post-mortem* a typical lymphosarcoma was found in the thymic region, and most of the cervical and axillary glands had extended beyond their capsule. The aortic glands were also enlarged, as were the Peyer's patches, and there were slight nodules in the spleen, which organ was, however, unusually small. Microscopically there was considerable necrosis of the lymphosarcomatous masses, and the blood vessels and connective tissue all exhibited a hyaline change. Dr. Moorhead expressed the opinion that the case was what is generally regarded as acute Hodgkins' disease, and stated his belief that that process was identical with lymphosarcoma.

MR. PRINGLE referred to a note in the *Lancet* in which an observer in Switzerland described the finding of an abnormally large leucocyte in the blood in lymphosarcoma, which he considered of use in the diagnosis.

DR. TRAVERS SMITH asked was there any relative lymphocytosis, and was the spleen palpably enlarged when the patient first came under Dr. Moorhead's notice?

DR. MOORHEAD said he had only noticed very big hyaline cells, especially towards the end of the case. He thought these were common in the condition.

The spleen was at no time enlarged to palpation. An early blood-count showed—neutrophiles, 68 per cent.; eosinophiles, 6 per cent.; lymphocytes, 17 per cent.; hyaline, 9 per cent. In August the eosinophiles were 5 per cent., and hyaline 9.5 per cent. The total number of leucocytes was from three to four thousand throughout.

Unusual Tumour of Kidney.

MR. C. ARTHUR BALL showed a renal tumour removed by nephrectomy from a young married woman, aged twenty-three. He stated that the tumour was first noticed by the patient herself, five days after her confinement, as a small lump which she could move about in the left side of her abdomen. The patient said nothing about the tumour until its rapid increase in size began to alarm her. It was removed exactly seven weeks after it was first noticed as a small lump; the kidney, which weighed exactly three pounds, was very adherent, and surrounded by large blood vessels. The patient made an excellent recovery. Previous to operation, cystoscopic examination and segregation of the urine from each kidney established the fact that the left kidney (the side of the tumour) was not functioning. Mr. Ball stated that it was a point of considerable interest that a solid tumour of the kidney could grow so rapidly, and asked for information as to whether the tumour was likely to recur either locally or by metastasis. The patient never had hæmaturia, and the urine was quite normal.

PROFESSOR O'SULLIVAN said the tumour was an encapsuled lobulated growth lying in the enlarged pelvis of the kidney, which it completely filled. The kidney and tumour were enclosed in a single capsule, the kidney lying above the tumour. There was a good deal of necrosis, with hæmorrhage into the necrosed tissue. The microscopic appearances were various, showing,

in different parts, papillæ covered by cubical epithelium, spaces lined by a similar epithelium, some invaded by papillæ and irregular masses of epithelium, with a few strands of hyaline connective tissue separating them.

PROFESSOR McWEENEY said that he had read a paper some years ago before the Section on tumours of aberrant supra-renal origin, and one of the specimens he then described was similar to Dr. Ball's. He did not think the fact of the tumour lying underneath the kidney was against its being of supra-renal origin, as the great majority of these tumours had been found starting from the pelvis of the kidney. He pointed out that what was described by Prof. O'Sullivan as delicate connective tissue papillæ, with cubical epithelial cells on each side, was precisely the structure that was found in supra-renal tissue tumours. He asked if Professor O'Sullivan had tested for glycogen, as it was supposed to be found in a large majority of these cases.

DR. EARL said he had seen a tumour which resembled the one before them very largely in its histology, but the naked eye appearances were different. It was much softer, almost diffuent. Sections from different parts of it differed very largely. He did not form any opinion as to its origin, but could not persuade himself that it was supra-renal. He could not tell if it was malignant or not, but he had seen tumours of the kidney which, if they had occurred in any other part of the body, would have been considered malignant. He had followed out some cases in which big tumours had been removed, and no recurrence had taken place. There was no organ of the body in which it was so difficult to say of what nature a tumour was as the kidney.

MR. GUNN described a case in which the clinical history was somewhat similar to that of Dr. Ball's case. The tumour was quite small, and symptoms pointed to bladder trouble. The cystoscope showed that no urine was coming from the affected side. He saw the case four weeks later, and the tumour had greatly increased in size.

Four years ago he showed a girl, aged fourteen, who had had a rapidly growing tumour of the left kidney. It had grown in the pelvis of the kidney, and extended down the ureter. Microscopical examination showed a distinct papillary growth, with nowhere more than two or three layers of cells. It was supposed to be an adeno-fibroma or intra-canalicular fibroma. There had been no recurrence, and the case had done well.

MR. BALL replied.

PROFESSOR O'SULLIVAN said he had not examined for glycogen, but would do so. The appearance of the cells was so unlike that of supra-renal cells, or even what he remembered of those in the tumour Professor McWeeney himself had shown that he could not believe it was of supra-renal origin.

Melanuria.

DR. T. G. MOORHEAD exhibited the organs of a patient who, during life, had presented the symptoms of melanuria. The patient was a woman, aged thirty, who had suffered from an orbital tumour for seven years, and had frequently been urged to have the eyeball enucleated. She had refused operation, however, until August, 1905, when, on account of its unsightly appearance, she had submitted to removal of the eye. In September, 1905, she was admitted to the City of Dublin Hospital suffering from enlargement of the abdomen and from breathlessness. The liver was found to be enlarged, and to be studded all over with nodules, and there was considerable ascites. The urine was of a light brown colour when passed, but rapidly darkened on standing, and ultimately became almost quite black. It gave a typical black colour, with perchloride of iron (von Jaksch test), and was also darkened by strong acids. There was no indican, no sugar, and no blood present. Neither the ascitic fluid nor the blood gave the melanin re-action. *Post-mortem.*—The liver was found enormously enlarged, weighing 13½ pounds, and was extensively infiltrated with melanotic growths of various sizes. Similar tumours were found in most of the other viscera, and both ovaries had become converted into large unilocular cysts with melanotic walls. [This case was reported in detail at page 423 of the number of the Journal for December, 1905. Vol. CXX. No. 408. Third Series.]

DR. TRAVERS SMITH asked if the bromine water test for melanin had been done? Were there any cutaneous sarcomatous nodules?

PROFESSOR O'SULLIVAN said that it was curious that a reduction should take place with bismuth in Nylander's test, and there was no reduction in the copper test. Perhaps some different reaction took place not the same as sugar.

DR. MOONEY said he had the original tumour. It occupied the orbit, and was the blackest tumour he had ever seen. The sclerotic was invaded, and after removal of the eye the remaining tissues were still infiltrated with black pigment.

PROFESSOR McWEENEY said he had seen cases of acid melanuria due to the action of carbolic acid, but had not seen any cases of extensive melano-sarcoma.

DR. MOORHEAD, in replying, said that he did try the bromine water test, but it gave a black precipitate, just like the others. There were no cutaneous lesions. He thought that von Jaksch's was now admitted to be the best test. In reference to Nylander's test, he said he had repeated both it and the copper test on two or three occasions. He got a slight reduction with copper, but only on prolonged boiling, but Nylander's test came out unusually quickly. He did the phenyl hydrazin test, and did not get any characteristic crystals.

SECTION OF SURGERY.

President—SIR ARTHUR CHANCE, P.R.C.S.I.

Sectional Secretary—E. H. TAYLOR, F.R.C.S.I.

Friday, December 1, 1905.

T. E. GORDON, F.R.C.S.I., in the Chair.

Tuberculous Disease of the Seminal Tract.

MR. GUNN read a paper on the surgical treatment of tuberculous disease of the seminal tract. Referring to those cases in which both testes are affected, and where the vesicles or prostate are also diseased, he showed that the course of the disease was not, as a rule, checked by the removal of the testicles, but sooner or later the bladder was infected, and from it the kidneys, and this ended in the death of the patient. Mr. Gunn advocated the complete removal of the disease, and told of two cases in which he had removed both testicles, both cords, both seminal vesicles and the prostate through inguinal and perineal incisions. In each case the patient was up on the eighth day, with complete control over his bladder. In neither case has there been any sign of the disease recurring. The bladder was in each case carefully examined with a cystoscope before the operation, in order to be certain that there was no tubercular infection there.

MR. EDWARD TAYLOR believed that the usual treatment of tuberculous disease of the testes by operation was very imperfect, a much more extensive procedure being generally requisite. It was almost certain that by the time the disease was fully

manifest in the epididymis more distant parts of the seminal tract were also implicated, although the fact might be difficult to prove by the ordinary methods of examination.

MR. HAUGHTON stated he had performed two radical operations on such cases, but found he could not get good access to the seminal vesicles by the abdominal route. He wished to know from Mr. Gunn if he had experienced much difficulty in removing the entire seminal tract.

MR. C. A. BALL alluded to the fact that cases were occasionally observed in which tuberculous disease of the seminal tract seemed to stand still for a considerable time. He had known of one case in which the disease had involved the deep urethra, and had ultimately healed up, leaving a stricture.

MR. GUNN, in replying, dealt in more complete detail with the steps of the operation for removal of the seminal tract. He first exposed the vas by means of an inguinal incision, and traced it into the pelvis up to the point at which it was crossed by the ureter. The second stage of the operation consisted in exposing the prostate, as in perineal prostatectomy, and working backwards towards the seminal vesicle and terminal portion of the vas. If the latter was diseased its complete removal should be attempted, but if it appeared healthy, the perineal stage of the operation could be deferred to a later date.

Sterilisation of the Hands.

MR. W. S. HAUGHTON and DR. ROWLETTE contributed a paper on this subject.

MR. W. S. HAUGHTON, after referring to some investigations he had carried out on this subject during the past few years, stated that his experiments supported the general view that "soap-hot-water-alcohol" method was the best; but that during past twelve months he had experimented with "soap-hot water-sublimate" method, tested on three different pairs of hands—the surgeon's, assistant's, and nurse's. The method was:—(1) Scrubbing for twenty minutes with soap, hot-water and boiled nail brush, followed by (2) immersion for one to two minutes in sublimate, aqueous solution (1-500), which was rinsed off in normal saline before hands were put into (3) rubber gloves boiled for ten minutes. The skin of hands, nails, and glove, was tested at the different stages of preparation—before, during, and at end of operation. Some eighty square inches were searched thoroughly by sterile swabs on each pair of hands, and the nails

{all ten) probed deeply with stout platinum wire before inoculation of tubes. This test, it was claimed, was more stringent than any hitherto put forward, and the results of culture proved that absolute sterilisation of skin by this method was difficult or impossible, and when obtained was not permanent—the recess under nails being the most difficult to disinfect. The rubber gloves, tested at end of operation, only once gave a positive result—i.e., produced a culture. Some 200 tubes were examined. Air infection of gloves during operation was met by frequent washing in sublimate (1-500), which was at once rinsed off in normal saline to prevent entry of any chemical poison into the wound. These results indicate that rubber gloves are advisable. The clinical results in the year's work of cases operated on by this technique were highly satisfactory, and showed a continuous series of aseptic healing of wounds.

MR. R. A. STONEY mentioned the results of two series of experiments which were undertaken mainly for the purpose of proving the possibility of completely sterilising the hands, or, at least, of rendering them free from pathogenic organisms. In the first series, tubes of broth and agar were inoculated with snips of skin, portions of silk on which knots had been tied, and scraps from the skin of the hands and from under the nails. The method of sterilisation adopted was—(1) nail-brush and hot water and soap, 5 minutes; (2) alcohol, 2 minutes; (3) 0.2 per cent. biniodide of mercury, 2 minutes. In this series the results were not satisfactory, as although complete sterility was sometimes attained, staphylococci grew on the media on several occasions. In the second series, after washing in soap and hot water, the hands were steeped for 2 minutes in a mixture containing 60 per cent. alcohol, 6 per cent. strong HCl. and 1 in 1200 corrosive sublimate. Cultures were taken before and after operation. In no case did any growth of cocci occur, but on four occasions out of one hundred and twenty a growth of a sporing bacillus was obtained. As this was a non-pathogenic microbe the results might be considered perfect from a practical point of view. The conclusions drawn were:—(1) That it is possible to sterilise not only the surface of the hands, but also the deeper layers, and therefore the wearing of gloves is not a necessity; (2) the practical demonstration of anatomy and surgery on the dead body does not increase the difficulty of sterilising the hands; (3) owing to the variation in the tolerance of the skin of different

people to the action of antiseptics, it may be impossible to sterilise the hands, and then the wearing of gloves while operating becomes obligatory. As a corollary of this it follows that everyone should experiment for themselves in order to find a suitable and reliable method of preparing their own hands for operation.

DR. T. G. MOORHEAD gave details of the bacteriological aspect of Mr. Stoney's investigations. On several occasions he found *débris* on the surface of the agar or in the broth, so that the test was stringent. As regarded incubation, all tubes were kept until the eighth day and some for a fortnight. When a growth was obtained it was plated out and the colonies examined.

MR. T. E. GORDON and MR. E. H. TAYLOR discussed the communications, and were in agreement as to the advisableness of wearing rubber gloves in operative work.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

At a meeting of the College held on October 18th, 1905, the following gentlemen, having passed the requisite examinations, were admitted Fellows :—Edward Napier Burnett, M.B., C.M., Cullercoats; Philip Sylvester Clarke, M.B., C.M., Edinburgh; Harold Clifford, M.R.C.S. Eng., Manchester; Frank Inglis Dawson, M.B., Ch.B., Midlothian; Elgar Down, M.R.C.S. Eng., Devonport; Hugh Nethersole Fletcher, M.B., Ch.B., Norfolk; Thomas Arthur Green, M.D., Bristol; Reginald John Edward Hanson, M.B., Ch.B., London, W.; Carnet Wilson Harty, M.B., Ch.B., Bristol; Ernest Jermyn Hynes, M.R.C.S. Eng., Edinbane; William Kelty, M.B., C.M., Edinburgh; George Lyon, M.D., Edinburgh; Patrick Frederick McFarlan, M.B., Ch.B., Musselburgh; Thomas Myles, M.D., Edinburgh; Lloyd Turton Price, M.B., Ch.B., Edinburgh; Thomas William Edmonston Ross, M.B., Ch.B., Edinburgh; Thomas Walter Scott, M.R.C.S. Eng., Victoria; Hugh Neville Adam Taylor, M.D., L.R.C.S.E., Rhayader; Benjamin Philip Watson, M.B., Ch.B., Edinburgh; Edward Colston Williams, M.B., M.R.C.S. Eng., Wigan; and Thomas James Wright, M.R.C.S. Eng., Norwich.

SIR WALTER RALEIGH'S "ROYAL CORDIAL."

With some Side-lights on the Clinical Medicine and Therapeutics (and, incidentally, on the Political and Social Morality) of his Generation. By JOHN KNOTT, M.A., M.D., Ch.B., and D.P.H. (Univ. Dub.); M.R.C.P.I.; M.R.I.A.; &c.

"As for Rawleigh, none ever employed inlargement worse, that knew so well how to advantage himselfe and his country in imprisonment; for during his tedious lying in the Tower (under the jealousy rather than justice of King James, who did so farre participate of the humour of a pusillanimous prince, as to pardon any sooner than those injured by himselfe), he was delivered of that Minerva, the History of the Old World; which travel of his brain proved more successful, than that of his body, to discover a new one, in that unhappy voyage to Guiana, in which his son, with a number of other gentlemen, were lost and undone, and he exposed to the Spanish cruelty, who, about that time, began to dazle the weaker eyes of James, with the contemplation of a match between our prince and that king's sister, to whom Sir Walter had rendered himself suspected, no lesse then he had formerly disobliged the treasurer Cecill, by obstructing, to the farthest extent of his power, a peace, through his mediation, propounded in the very shutting in of Queen Elizabeth's daies: which was not only the cause of his arraignment long before, and carried on so fiercely by Attourney Cook, and the dependers on the treasurer, at Winchester; but of the order upon this occasion sent, though long after, to Gondamor, the Spanish agent, vigorously to demand the head of Rawly for an assault made by him on his masters Indies: A head of more weight to our court (especially in that dearth of wisdome then raging), then the Infanta could be, notwithstanding the most generall no lesse than the least suspected reports made her alone owner (though small in stature), of the greatest beauty, virtue, gallantry, and prudence, that were at that day extant in womankind. But as the foolish idolaters were wont to sacrifice the choycest of their children to the devill, the common enemy of humanity; so our king gave up this incomparable jewel to the will of this monster in ambition, under the pretence of a superannuated transgression; contrary to the opinion of the most honest sort of gownmen, who maintained that his majesties pardon lay inclusively in the com-

mission he gave him upon his setting out to sea : It being incongruous, that he, who remained under the notion of one dead in law, should, as a generall, dispose of the lives of others, not being himselfe master of his owne : But the Spanish faction, then absolute at court, and sole managers of the kings power, no lesse then his justice, did so farre tender his Catholic majesties full satisfaction in the procuring his death, the only man of note left alive that helped to beate them in the yeare 1588, that no absurdity lying in the way of his prosecution could deterre them from making use of his former condemnation : Remembering, withall, how far his wit had puzled them at Winchester, that though his judges were willing enough to destroy him there, yet did they rather tire him out of his life, by the bawling of the king's counsell on one side, and the benches insisting upon a confession, extorted from the Lord Cobham out of feare, (who being in the same condemnation, could but make a circumstance, no creature else averring it), then convince him : some of his jury being, after he was cast, so farre touched in conscience, as to demand of him pardon on their knees ; which made it the lesse probable they should be able to impanell one so wicked as would do it then. Besides, no peace beyond the Line was a beliefe so riveted in the opinions of all, as he could not have been indicted a new, without the kings producing of the originall articles, by which his accusers would have been convinced of malice, or his prince of folly. He was captaine of the guard to Queen Elizabeth, warden of the Cinque Ports, first discoverer of that new plantation, which, in honour of his mistress, he named *Virginia* ; but, above all, of so incomparable a dexterity in his judgment, as the treasurer (who had already, by an universall compliance with the king and his countrymen, purchased the monopoly of his favour) grew jealous of his excellent parts, lest he should supplant him. And this was the first cause of his bringing to that trial from whence Gondomar and our espaniolized English took this last advantage to cut off his head : which Edward Wimark, the Pauls-walker, wished upon Sir Robert Nantons shoulders, one of the secretaries of state, who, conscious of the need he had of such good parts, convented him for it, but without any better successe, then making himself ridiculous ; yet, had he or his master owned so much understanding, as witty Wimark meant that made the wish, we should not have found such cause to complaine now of his sonnes evill counsell ; left him by descent from King James, that gave this fatall blow, not possibly then

to be seconded by such another, made so much the heavier, because procured at the sute of an enemy.

"His death was by him managed with so high and religious a resolution, as if a Roman had acted a Christian, or rather a Christian a Roman: So, as amongst the number that contributed to the destruction of the Earle of Essex, none but he died pittied. Which James finding, he, according to the mode of weak and ill-consulted princes, set forth in print a declaration, which, according to the ordinary successe of such apologies, rendered the condition of that proceeding worse in the worlds opinion: It begins thus,

"*Though I take my selfe bound to give no other account of my actions but to God, yet, &c.*"

Thus we find written the graphically-worded record of a first-hand observer in a small volume, entitled *Traditional Memoyres on the Raigne of King James*, which was published in London in 1658. The extracts which I have made therefrom contain materials peculiarly suitable as texts for interesting and prolonged discourses on the painfully slow evolution of clinical diagnosis and therapeutics, of the value of alchymy in the development of experimental science, of the proverbial gratitude of royal personages and their courtly satellites, of the prevalence of Machiavellian methods of policy in the establishment and maintenance of government in all ages and countries, of the inexplicable ascendancy of the agencies of mischief and evil in matters mundane, of the successful care with which historic truth is generally veiled from the eyes of posterity as well as of contemporaries, and of the unutterable meanness of motive which so often furnishes the mainspring for the original movement of apparently great events.

There are few more interesting combinations of the adventurous, the contemplative, the heroic, and the intellectual, to be found in the panorama of the world's history, than that met with in the personality of Walter Raleigh, "the typical gallant and hero of England's heroic age." His zones of special activity embraced the (then very) New World as well as the Old; and our own Emerald Isle, as well as his native England, including the Court; and—very conspicuously, indeed—the Tower of London. Born in 1552, he entered Oriel College, Oxford, in 1566; where his characteristically adventurous spirit asserted itself in prompting him to leave without a degree, for the purpose of volunteering to join the Huguenot insurgents in France. He next investigated personally the prospects of American colonisation. In 1580, we find him landing in Cork, in command of a hundred infantry, to

aid in the chastisement of the Irish rebels. In 1581 he returned to England, and was introduced to the Court circle as the protégé of the reigning favourite of the Virgin Queen, the Earl of Leicester, whom he accompanied to the Netherlands in the following year. Soon after his return he became prime favourite of Elizabeth, whose susceptibility of heart still retained its freshness, despite its physiological service of nearly half a century. The average intelligent denizen of our metropolitan thoroughfares probably now best remembers Raleigh as the hero of Fuller's story of how he first caught her eye by flinging down on the ground his fine plush cloak to save her feet from the mire; although the incident is now usually regarded as apocryphal. But it is a pity to reject it: as Davidson truly observes, "it well befits the romantic temper of the times, and the manner of fantastic devotion with which the Virgin Queen loved to be wooed or worshipped by the fine gentlemen of her court. Raleigh was now in the prime of manly beauty; his tall and handsome figure, dark hair, high colour, lofty forehead, resolute and manly bearing, alert expression, and spirited wit, combined to form an imposing personality; and all the advantage that nature had given him he heightened by a gorgeous splendour in dress and in jewels. In 1583-4-5, we find his restless spirit promoting attempts at colonisation in North America. The success was not encouraging; the Queen, however, graciously adopted the suggestion of giving the name of *Virginia* to the "New Dominion." One hundred men lived for a year on the island of Roanoke, and then returned to England in Drake's fleet, completely dispirited by their experience of the New Continent. One of these, Thomas Hariot, gave an account of the colony, in which he mentions the herb, "called by the inhabitants *Yppowoc*," which has since taken so prominent a place in the luxury—and even finance—of Old World existence. Raleigh himself took most kindly to the enjoyment of the new vegetable product, and smoked it in pipes of silver while his admiring queen sat by. But such restful felicity could not last. The young Earl of Essex appeared at Court in 1587, and Raleigh received a grant of 42,000 acres in Munster! In his romantically-situated garden at Youghal, he planted the first tobacco and first potatoes known to Irish soil. Associated therewith, too, is his friendship for Edmund Spenser, and his activity in preparing for the reception of the Spanish Armada—which consecutively led to his vigorous practice of *piracy*—for it was no other—on the "Spanish Main." His subsequent adventurous record would

be too irrelevant for the present associations, so that I do not propose to refer in detail to any facts not connected with the genesis or application of the "Royal Cordial."

The restlessly active—and phenomenally productive—qualities of Raleigh's mind and body were never more forcibly demonstrated than during the long years of his imprisonment in the Tower. Prince Henry, the bright favourite of the English people, during the early part of that period, was devotedly attached to Raleigh, and is reported to have said that no one but his father would have kept "such a bird in such a cage." The fatal illness of his Royal Highness occurred during the imprisonment of the great object of his admiration, and among the other remedies employed in the despair of the physicians was the "Cordial" that had so happily restored the Queen Consort to health—which was prepared by the amateur alchymist in his Tower laboratory. It is said to have provoked a perspiration, but "nature was too much spent" for profiting by the crisis.

Why one of the most brilliant geniuses of whom the English nation and race can boast was thus shut off from the world, would be a far more depressing subject for discussion by posterity had his seclusion not given birth to his gorgeous *History of the World*: a folio far too little known in this age of tinned preserved knowledge, pigeon-holed examinational reference-material, ultra-peptonised science and philosophy, and artificial cerebral digestion. The wherefore is one of the morbid curiosities of courtly and aristocratic life—which offers a special interest to the medical as well as to the moral pathologist. We learned in our young days from our *Student's Hume*—or corresponding manual of English history—that Raleigh was convicted on a charge of treasonable conspiracy. The reader will have gathered from the quotation at the head of the present paper that there were grounds for suspicion that the real *conspiracy* was a criminal one against Raleigh, in the form of a false accusation. The motive was, of course, the subject of copious (private and whispered) comment among the back-stairs scandal-mongers of the period, and was well known in Oxford, at least down to the time of Thomas Hearne. The Salisbury referred to was, politically, the great enemy of Essex, who had supplanted Raleigh in the position of first favourite with the Queen. Naturally enough, Raleigh ranged himself on Salisbury's side! He made himself in every way agreeable and obliging—reminiscent of the method by which he was said to have first won the favour of his Royal mistress.

Salisbury was a hunch-backed dwarf, and is known to have inspired Bacon's *Essay on Deformity*. Raleigh even undertook to "procure" for him. A desirable virgin was promised, but the mischievously high spirits of Raleigh induced him to play a wickedly practical joke. Instead of the promised virgin, a badly-diseased prostitute was introduced; with infective results from which the hunch-backed Lord Treasurer was said to have never recovered. A scurrilous pasquinade, circulated after his death, furnishes the prominent items of his unpopularity:—

" Here lyes throwne, for the wormes to eat,
 Little bossive Robbin, that was so great
 Not Robin Good-fellow, nor Robin Hood,
 But Robin th' encloser of Hatfield wood,
 Who seem'd as sent from ugly fate,
 To spoyle the Prince, and rob the State.
 Owing a mind of dismal endes,
 As trapps for foes, and tricks for friends.
 But now in Hatfield lyes the Fox,
 Who stank while he liv'd, and died of the Pox."

Let us now turn for a time from the contemplation of conditions so morbidly instructive, and so morally infectious, to examine some interesting evidence regarding the clinical diagnosis and practice of Raleigh's generation, and the composition and therapeutic value of the famous "Royal Cordial;" of which he elaborated the preparation, during his enforced sojourn in the Tower, to the highest degree of which his alchymical enthusiasm permitted. We are told by Sir Anthony Weldon that—

"Queen Anne, that brave princess, was in a desperate, and beleev'd incurable disease; whereof the phisitians were at the furthest end of their studies to finde the cause, at a *non-plus* for the cure; Sir Walter Rawleigh, being by his long studies an admirable chymist, undertooke and performed the cure: for which he would receive no other reward, but that her majesty would procure that certaine lords might be sent to examine Cobham, whether he had accused Sir Walter Rawleigh of treasone at any time under his hand: The King at the Queen's request, (and in justice could do no less), sent six lords, which, I take, were, the Duke of Lennox, Salisbury, Worcester, Suffolk, Sir George Carew, and Sir Julius Cæsar, to demand of Cobham, whether he had not, under his hand, accused Sir Walter Rawleigh at Winchester, upon that treasone he was arraigned for. Cobham did protest never, nor could he; but, said he, 'That villain Wade did often solicit me, and, not prevailing, got me, by a trick, to

write my name upon a piece of white paper, which I, thinking nothing, did ; so that if any charge came under my hande, it was forged by that villain Wade, by writing something above my hand, without my consent or knowledge,' These six returning to the King, made Salisbury their spokesman, who said, ' Sir, my L. Cobham has made good all that ever he wrote or said ' ; and this was an equivocating trick, for it was true that he made good whatever he writ, but never wrote anything to accuse Rawleigh ; by which you see the baseness of these lords, the credulity of the King, and the ruin of Sir Walter Rawleigh. I appeale now to the judgement of all the world, whether these six lords were not the immediate murtherers, and, no question, shall be called to a sad account for it."

That her Majesty used her best efforts—and with her best judgment—in Raleigh's behalf is shown by a letter written by her to the Marquis of Buckingham, the then reigning favourite of King James, which is published in Cayley's *Life*. She addresses the minion as " My Kind Dogge," and the opening sentence is thus worded : " If I have any power or credit with you, I pray you let me have a trial of it at this time, in dealing sincerely and earnestly with the King that Sir Walter Raleigh's life may not be called in question." (An instructive specimen of the diplomacy and etiquette of the Court of King James I. !)

The known possibilities and methods of promotion at Court were incisively depicted in doggerel verse by an individual named Lane, who is probably not included among the select men of letters by any readers of the twentieth century. Yet some of his lines display remarkable concentration of ideas. The following were circulated after the promotion of James's favourite, Carr :—

" ADVICE TO THE SONS OF MEN.

" Let any poor lad, who is handsome and young,
With *Parle vous France*, and a Voice for a Song,
But once get a Horse, and seek out good *James*,
He'll soon find the House, 'tis great, near the *Thames*,
It was built by a Priest, a Butcher by calling,
But neither Priesthood nor Trade cou'd keep him from falling.
As soon as you ken the pitiful Loon,
Fall down from your Nag, as if in a Swoon :
If he doth nothing more, he'll open his Purse,
If he likes you, ('tis known he's a very good Nurse)
Your Fortune is made, he'll dress you in Sattin,
And, if you're unlearned, he'll teach you Dog Latin."

And the literary aspirations of the " British Solomon " were

believed by some of the best informed contemporaries to have aided in sealing the fate of Raleigh. The reigning monarch did not desire the presence of a courtier—already so conspicuously placed "in the public eye"—whose writings so far excelled his own, in matter and manner, in learning and in dignity.

(To be continued.)

PRESERVATIVES IN MILK.

DR. CARSTAIRS DOUGLAS writing (*The Scottish Medical and Surgical Journal*, November, 1905) on formic aldehyde as a milk preserver sums up:—"The conviction that has been forced on my mind by the foregoing observations, and others of similar nature, is that we have judged this preservative somewhat over-severely. I am far from making the suggestion that preserved milk is as good as fresh, but as stated in the beginning of this paper, under existing circumstances, milk comes into town teeming with myriads of organisms, and in warm weather a great deal is lost. To obviate this, preservatives are constantly used in varying and often excessive amounts; would it not be better that the use of certain preservatives should be allowed, provided always that their nature and amount were clearly declared? If this were come to pass, I would urge a plea for reconsideration of the claims of formic aldehyde in such proportions as 1 in 30,000 and 1 in 40,000, believing that it might be possible to remove the ban under which it lies at present."

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

At a Meeting of the College held on December 15th, 1905, the following gentlemen, having passed the requisite examinations, were admitted Fellows:—Russell Gerald William Adams, L.R.C.S.E., Blenheim, New Zealand; John James Bell, L.R.C.S.E., Manningham, Bradford; Norman Duncan Buchanan, M.B., M.R.C.S. Eng., Zurich, Ontario; Thomas Marshall Callender, M.D., Sidcup, Kent; Khursedji Nasserwanji Karanjia, M.R.C.S. Eng., London; William Mackenzie, M.B., Edinburgh; Owen St. John Moses, M.D., Captain, I.M.S.; Jamshijd Dadabhai Munsiff, L.R.C.S.E., Edinburgh; William Ernest O'Hara, L.R.C.S.E., Edinburgh; William Guthrie Porter, M.B., Edinburgh; Walter Alexander Ramsay Sharp, M.B., Sydney; Herman Stedman, L.R.C.S.E., London, E.; Henry Young Cameron Taylor, M.B., Govan; and Alexander Wilson, M.D., Bearsden, Dumbartonshire.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

For four weeks ending Saturday, December 2, 1905.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending December 2, 1905, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 20.3 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,093,959. The deaths registered in each of the four weeks ended Saturday, December 2, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality.

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Nov. 11	Nov. 18	Nov. 25	Dec. 2			Nov. 11	Nov. 18	Nov. 25	Dec. 2	
22 Town Districts	19.4	19.8	21.4	20.3	20.2	Lisburn -	13.6	13.6	22.7	22.7	18.2
Armagh -	-	6.9	34.4	13.7	13.8	Londonderry	14.9	14.9	11.2	19.8	15.2
Ballymena	14.4	19.2	19.2	33.5	21.6	Lurgan -	4.4	22.1	13.3	8.9	12.2
Belfast -	20.5	21.8	20.1	20.4	20.7	Newry -	12.6	12.6	37.8	16.8	20.0
Clonmel -	20.5	41.0	51.3	15.4	32.0	Newtownards	17.2	22.9	17.2	22.9	20.1
Cork -	19.9	24.7	23.3	24.0	23.0	Portadown -	5.2	10.3	20.7	25.8	15.5
Drogheda -	20.4	24.5	8.2	16.3	17.4	Queenstown	19.8	6.6	13.2	26.4	16.5
Dublin -	20.1	20.8	22.7	20.4	21.0	Sligo -	4.8	9.6	19.2	9.6	10.8
(Reg. Area)						Tralee -	-	15.9	26.4	5.3	11.9
Dundalk -	19.9	16.0	19.9	16.0	18.0	Waterford -	23.4	3.9	19.5	7.8	13.7
Galway -	15.5	11.7	31.1	15.5	18.5	Wexford -	37.4	28.0	14.0	26.0	26.8
Kilkenny -	19.7	9.8	4.9	24.6	14.8						
Limerick -	24.6	9.6	27.3	27.3	22.2						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, December 2, 1905, were equal to an annual rate of 0.7 per 1,000, the rates varying from 0.0 in nineteen of the districts to 5.7 in Newtownards. Among the 140 deaths from all causes in Belfast are one from scarlet fever, one from whooping-cough, one from diphtheria, and 4 from enteric fever.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, December 2, amounted to 198—99 boys and 99 girls : and the deaths to 157—66 males and 91 females.

DEATHS.

The deaths registered during the week ended Saturday, December 2, represent an annual rate of mortality of 21.6 in every 1,000 of the population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the area, the rate was 20.4 per 1,000. During the forty eight weeks ending with Saturday, December 2, the death-rate averaged 22.4 and was 3.3 below the mean rate for the corresponding portions of the ten years 1895–1904.

One of the deaths registered was from whooping-cough, 2 were from enteric fever, 5 from diarrhoeal diseases, and one was from influenza. The deaths from enteric fever in the 3 preceding weeks numbered 2, 0, and 0 ; and the deaths from diarrhoeal diseases, 4, 2, and 3, respectively.

Lobar pneumonia caused one death, broncho-pneumonia 5 deaths, and *pneumonia* (not defined) 4.

Deaths from all forms of tuberculous disease, which numbered 27, 38, and 27 in the 3 preceding weeks, were 28, consisting of 6 from tubercular phthisis, 12 from *phthisis*, 4 from tubercular meningitis, one from tubercular peritonitis, and 5 from other forms of the disease.

Carcinoma caused 2 deaths, sarcoma one death, and cancer (undefined) 5 deaths.

The death of one infant, born prematurely, was registered.

Fourteen deaths were attributed to diseases of the brain and nervous system, including 5 infants under one year of age from *convulsions*.

There were 25 deaths from diseases of the heart and blood vessels.

Bronchitis caused 32 deaths.

There were 3 accidental deaths, one having been caused by burns and one by drowning.

In 4 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 2 infants under one year of age and the death of one person aged 79 years.

Forty-two of the persons whose deaths were registered during the week were under 5 years of age (26 being infants under one year, of whom 7 were under one month old) and 46 were aged 60 years and upwards, including 25 persons aged 70 and upwards, of whom 9 were octogenarians, and 2 (a man and a woman) were stated to have been aged 92 and 95 years, respectively.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious disease notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended December 2, 1905, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Nov. 11	-	•	•	12	-	-	4	-	8	3	17	-	•	•	•	43
	Nov. 18	-	•	•	4	2	-	1	-	1	2	17	-	•	•	•	29
	Nov. 25	-	•	•	4	-	-	1	-	1	2	10	-	•	•	•	19
	Dec. 2	-	•	•	3	-	-	8	-	3	2	8	-	•	•	•	24
Rathmines and Rathgar Urban District	Nov. 11	-	•	•	-	-	-	-	-	-	1	-	-	•	•	•	1
	Nov. 18	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	1
	Nov. 25	-	•	•	1	-	-	-	-	-	1	1	-	•	•	•	3
	Dec. 2	-	•	•	-	-	-	1	-	-	-	-	-	•	•	•	1
Pembroke Urban District	Nov. 11	-	-	-	-	-	-	-	-	-	1	1	-	•	-	-	2
	Nov. 18	-	-	-	-	-	-	-	-	-	1	-	-	•	-	-	1
	Nov. 25	-	-	-	-	-	-	-	-	-	1	-	-	•	-	-	1
	Dec. 2	-	-	-	1	-	-	-	-	1	2	-	-	•	-	-	4
Blackrock Urban District	Nov. 11	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Nov. 18	-	•	•	1	-	-	-	-	-	-	-	-	•	•	•	1
	Nov. 25	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Dec. 2	-	•	•	-	-	-	1	-	-	-	-	-	•	•	•	1
Kingstown Urban District	Nov. 11	-	•	•	-	-	-	-	-	-	-	1	-	•	•	•	1
	Nov. 18	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Nov. 25	-	•	•	-	-	-	-	-	-	-	1	-	•	•	•	1
	Dec. 2	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
City of Belfast	Nov. 11	-	•	•	31	-	-	6	2	10	11	9	-	•	•	•	66
	Nov. 18	-	•	•	31	-	-	4	3	2	13	16	-	•	•	•	66
	Nov. 25	-	•	•	19	-	1	3	1	19	10	12	-	•	•	•	65
	Dec. 2	-	•	•	24	-	-	13	-	23	9	6	-	•	•	•	75

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended December 2, 1905, 9 cases of measles were admitted to hospital, 2 patients were discharged, and 15 patients remained under treatment at its close.

Twelve cases of scarlet fever were admitted to hospital, 11 were discharged, and 59 cases remained under treatment at the close of the week. This number is exclusive of 23 convalescents who remained under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

One case of typhus was discharged from hospital and 3 cases remained under treatment at the close of the week.

Nine cases of diphtheria were admitted to hospital, 4 were discharged, and 28 patients remained under treatment at the close of the week.

Three cases of enteric fever were admitted to hospital, 6 were discharged, there was one death, and 42 cases remained under treatment in hospital at the end of the week.

In addition to the above-named diseases, 7 cases of pneumonia were admitted to hospital, 11 were discharged, there was one death, and 16 cases remained under treatment at the close of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended December 2, in 76 large English towns, including London (in which the rate was 18.1), was equal to an average annual death-rate of 16.7 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 18.7 per 1,000, the rate for Glasgow being 20.8, and for Edinburgh 13.5.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of November, 1905.

Mean Height of Barometer,	-	-	29.651 inches.
Maximal Height of Barometer (17th, at 9 p.m.),	30.231	„	
Minimal Height of Barometer (26th, at 3 20 p.m.),	28.775	„	
Mean Dry-bulb Temperature,	-	-	41.4°
Mean Wet-bulb Temperature,	-	-	40.2°
Mean Dew-point Temperature	-	-	38.7°
Mean Elastic Force (Tension of Aqueous Vapour),	.239	inch.	
Mean Humidity,	-	-	90.5 per cent.
Highest Temperature in Shade (on 22nd),	-	55.9°.	
Lowest Temperature in Shade (on 19th),	-	23.6°.	
Lowest Temperature on Grass (Radiation) (19th),	19.8°.		
Mean Amount of Cloud,	-	-	57.5 per cent.
Rainfall (on 19 days),	-	-	3.551 inches.
Greatest Daily Rainfall (on 1st),	-	-	.676 inch.
General Directions of Wind,	-	-	W., N.W.

Remarks.

November, 1905, was a cold, dull, damp, foggy and wet month. The mean atmospheric pressure was as much below (.209 inch) the average as it had been above it in November, 1904. The mean temperature was 2.7° below the average. Snow lay in Dublin throughout the 18th and 19th. Brilliant aurora was

observed between 8 and 9 p.m. of the 15th. The extreme temperatures of the month were recorded within three days of each other, and the difference was as much as 32.3° , the swing of temperature being from 23.6° on the 19th to 55.9° on the 22nd.

The duration of bright sunshine was estimated at 69.75 hours, or a daily average of 2.3 hours.

In Dublin the arithmetical mean temperature (42.7°) was 2.7° below the average (45.4°); the mean dry bulb-readings at 9 a.m. and 9 p.m. were 41.4° . In the forty-one years ending with 1905, November was coldest in 1878 (M. T. = 38.2°), and in 1870 (M. T. = 42.2°); warmest in 1899 (M. T. = 50.7°), and in 1881 (M. T. = 50.3°). In 1904 the M. T. was 45.3° .

The mean height of the barometer was 29.651 inches, or 0.209 inch below the corrected average value for November—namely, 29.860 inches. The mercury rose to 30.231 inches at 9 p.m. of the 17th, and fell to 28.775 inches at 3 20 p.m. of the 26th. The observed range of atmospheric pressure was, therefore, 1.456 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 41.4° , or 4.4° below the value for October, 1905. The arithmetical mean of the maximal and minimal readings was 42.7° , compared with a thirty years' (1871-1900) average of 45.4° . On the 22nd the thermometer in the screen rose to 55.9° —wind, S.W.; on the 19th the temperature fell to 23.6° —wind, W.N.W. The minimum on the grass was 19.8° , also on the 19th.

The rainfall was 3.551 inches on 19 days—the rainfall and the rainy days were much above the average. The average rainfall for November in the thirty-five years, 1866-1900, inclusive, was 2.560 inches, and the average number of rainy days was 17.0. In 1888, 6.459 inches fell on 26 days. On the other hand, the rainfall in 1896 was only .664 inch on 9 days. In 1904 the rainfall was 1.077 inches on 9 days.

High winds were noted on 8 days, and attained the force of a gale on three days—the 22nd, 26th and 29th. The atmosphere was more or less foggy in Dublin on the 1st, 3rd, 4th, 8th, 9th, 15th, 17th, 18th, 19th, 20th and 29th. Solar halos were seen on the 6th, 11th and 12th; a lunar halo appeared on the 5th. Sleet or snow fell on the 15th, 17th, 18th and 19th; hail on the 14th, 15th and 17th. Lightning was seen on the 4th and 15th, and a brilliant display of aurora borealis was observed on the evening of the 15th.

The rainfall in Dublin during the eleven months ending Nov. 30th amounted to 24.013 inches on 180 days, compared with 15.378 inches on 141 days during the same period in 1887, 24.450 inches on 162 days in 1899, 32.736 inches on 196 days in 1900, 24.086 inches on 156 days in 1901, 27.812 inches on 190 days in 1902, 30.015 inches on 212 days in 1903, 20.678 inches on 172 days in 1904, and a thirty-five years' average of 25.380 inches on 180 days.

At the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 29.646 inches, the range of atmospheric pressure being from 30.227 inches at 9 p.m. of the 17th to 28.854 inches at 9 a.m. of the 26th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 42.5°. The arithmetical mean of the daily maximal and minimal temperatures was 43.2°. The screened thermometers rose to 55.9° on the 22nd, and fell to 23.0° on the 19th. On the 9th the grass minimum was 21.0°. On the 4th the black bulb *in vacuo* rose to 84.8°. Rain fell on 19 days to the amount of 3.651 inches, the greatest fall in 24 hours being .700 inch on the 1st. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 47.3 hours, of which 5.0 hours occurred on the 24th. The mean daily sunshine was 1.6 hours. The mean temperature of the soil at a depth of one foot was 42.9° at 9 a.m.; at a depth of 4 feet, it was 46.7° at 9 a.m.

At Cloneevin, Killiney, Co. Dublin, Mr. Robert O'B. Furlong, C.B., states that 3.85 inches of rain fell on 21 days, compared with a twenty years' (1885-1904) average of 3.00 inches on 15.9 days. The maximal fall in 24 hours was .70 inch on the 1st. Since January 1, 1905, 25.95 inches of rain have fallen at this station on 167 days. The corresponding figures for 1898 were 26.77 inches on 173 days; 1899, 27.98 inches on 162 days; 1900, 33.47 inches on 188 days; 1901, 26.10 inches on 161 days; 1902, 30.18 inches on 178 days; 1903, 30.05 inches on 203 days; and 1904, 20.39 inches on 166 days. Snow fell on the 17th with hard frost. Hail fell on the 14th and 15th.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall was 4.761 inches on 19 days. Of the total quantity .660 inch fell on the 13th, and .595 inch on the 1st. From January 1st, 1905, up to November 30th, rain fell at Greystones on 150 days to the amount of 27.515 inches.

The corresponding figures for 1898 were 28.786 inches on 156 days; 1899, 32.870 inches on 162 days; 1900, 30.926 inches on 173 days; 1901, 31.425 inches on 147 days; 1902, 37.101 inches on 157 days; 1903, 33.070 inches on 193 days; and 1904, 23.572 inches on 160 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 22 days to the amount of 4.35 inches, the greatest measurement in 24 hours being .75 inch on the 1st. In November, 1901, the rainfall was 3.53 inches on 8 days; in 1902, it was 4.61 inches on 17 days; in 1903, 1.93 inches on 14 days; and in 1904, 1.26 inches on 11 days. The mean temperature in the shade was 42.4° , the range being from 25° on the 19th to 54° on the 22nd. Snow and hail fell on the 17th.

Dr. B. H. Steede reports that at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall was 6.082 inches on 22 days, compared with 5.724 inches on 18 days in 1900, 3.196 inches on 13 days in 1901, 5.551 inches on 18 days in 1902, 2.571 inches on 13 days in 1903, and 1.341 inches on 10 days in 1904. The maximal fall in 24 hours was .765 inch on the 4th. Since January 1, 1905, the rainfall at Newcastle amounted to 30.221 inches on 160 days. The corresponding figures for 1899 were 30.832 inches on 152 days; 1900, 34.323 inches on 168 days; 1901, 28.149 inches on 155 days; 1902, 35.293 inches on 172 days; 1903, 38.087 inches on 214 days; and 1904, 27.903 inches on 178 days. On the 22nd the screened thermometers at the Royal National Hospital rose to 52.2° , on the 19th they fell to 27.0° .

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 20 days to the amount of 3.730 inches, the largest measurement in 24 hours being .775 inch on the 1st. The total amount of sunshine was 64.3 hours, the most in one day being 6.4 hours on the 17th and 24th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 4.183 inches on 22 days; the greatest fall in 24 hours was .685 inch on the 1st. The mean shade temperature was 39.5° , the extremes being—highest, 51° on the 11th; lowest, 23° on the 19th.

At Leeson Park, Dublin, Deputy Surgeon-General C. Joynt, M.D., registered 3.795 inches of rain on 18 days, the largest measurement in 24 hours being .750 inch on the 1st.

Miss Muriel E. O'Sullivan reports that the rainfall at White

Cross, Stillorgan, Co. Dublin, was 4.091 inches on 20 days, .780 inch falling on the 1st and .530 inch on the 13th.

In the City of Cork Mr. William Miller returns the rainfall at 4.64 inches, or .58 inch above the average for November. There were 20 rainy days. The heaviest fall in 24 hours was .92 inch on the 25th. Up to November 30th, the rainfall of 1905 amounted to 33.67 inches on 171 days.

At Dunmanway Rectory, Co. Cork, the Rev. Arthur Wilson, M.A., registered a rainfall of 6.12 inches, the heaviest falls in 24 hours being 1.29 inches on the 25th, .86 inch on the 12th, .75 inch on the 29th, and .71 inch on the 27th. Mr. F. Fitzmaurice registered 6.29 inches in a self-registering zero gauge at Carbury, Co. Cork.

Dr. J. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health for Kingstown, reports that the mean temperature at that health resort was 44.1° , being 1.1° above the average for November during 18 previous years (1873-83 and 1898-1904). The extremes were—highest, 55.7° on the 22nd; lowest, 29.5° on the 19th. At Bournemouth the mean was 43.7° , the extremes being—highest, 55° on the 1st and 28th; lowest, 26° on the 21st. The mean daily range of temperature was 8.9° , at Bournemouth it was 10.4° . The mean temperature of the sea at Sandycove bathing-place was 46.9° , being 3.1° below the average for the month during the previous 7 years. The rainfall was 3.17 inches on 21 days, being 0.56 inches above the average for the month during 15 previous years (1873-83 and 1901-04); at Bournemouth it was 3.72 inches on 22 days. The duration of bright sunshine was 72 hours as compared with 64.3 hours at Phoenix Park, 85.9 hours at Valentia, 61.7 hours at Birr Castle, 52.1 hours at Southport, and 62.7 hours at Hastings.

WELFARE WORK.

THE endeavours of Messrs. Burroughs, Wellcome & Co. to promote the moral, mental and physical betterment of their people has received recognition at the Liège International Exhibition just closed. A special gold medal was conferred upon them for the "intellectual and moral development of workers."

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Bio-chemical Standardisation of Drugs.

FOR many years Messrs. Evans, Gadd & Company, Analytical and Manufacturing Chemists, of Exeter, have devoted considerable attention to the best methods of securing the uniformity and potency of pharmaceutical preparations. To this end, wherever possible, they have estimated the amount of active principle or principles which the respective drugs contain, and have adjusted the finished product to a definite proportion of the same. They have, however, been constantly troubled by the difficulty that the chemistry of some of the most important drugs is as yet so imperfectly understood that there are no means of effectually standardising them by chemical tests. However, Dr. W. E. Dixon read a paper at the Brighton meeting of the British Pharmaceutical Conference in July, 1905, in which he advocated and described bio-chemical tests for drugs, the strengths of which could not be estimated by purely chemical methods. Since that date Messrs. Evans and Gadd have submitted some of their drugs to examination in the Pharmacological Laboratory of the University of Cambridge, and they are already prepared to offer two tinctures standardised by a bio-chemical method. These are the tinctures of *strophanthus* and of *squill*. The minimal lethal dose of the tincture of *strophanthus* for a twenty gramme frog is a quarter of a minim, which proves it to have an effectual action on the heart. The medicinal dose is that given in the *Pharmacopœia*—namely, 5–15 minims, and it should be prescribed as “*Tinct. Strophanthi* (Gadd).” The minimal lethal dose of the tincture of *squill* for a twenty-five gramme frog is three minims, which proves that it also has an effectual action on the heart. The medicinal dose is that given in the *Pharmacopœia*—namely, 5–15 minims. Physicians are now beginning to recognise that *squill* is a more valuable drug than it was hitherto thought to be, and it is therefore a fitting time to call attention to this product, which may be prescribed as “*Tinct. Scillæ* (Gadd).”

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MEDICAL SCIENCE.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. IV.—*The Diagnosis and Treatment of a Perforated Gastric Ulcer, with Notes on a Successful Case.* By ALFRED R. PARSONS, M.D. (Dubl.), F.R.C.P.I.; Physician to the Royal City of Dublin Hospital and to the Royal National Hospital for Consumption.

THE successful treatment of a perforated gastric ulcer depends on its early recognition. Every hour which elapses from the occurrence of the lesion increases the severity and extent of the consecutive peritonitis. It is vitally important that the diagnosis should be made and operative interference undertaken before the patient presents indications of general septic intoxication. Practically all cases of perforation into the general abdominal cavity from an ulcer on the anterior wall of the stomach, with extravasation of the gastric contents, if treated on purely medical lines are fatal. A recognition of this fact led Mikulicz^a in 1880 to recommend surgical interference. Three years later Nelson C. Dobson^b was the first in these countries to advocate operative measures for a perforated ulcer. The first successful operation was

^a Mayo Robson and Moynihan. *Diseases of the Stomach.* 2nd Edition. P. 310.

^b Dobson. *Bristol Medical and Surgical Journal.* 1893. P. 196. Quoted by Einhorn. *Diseases of the Stomach.* 1898. P. 233.

performed in 1892 by Kriege.^a Cases rapidly accumulated, and Robert F. Weir,^b reporting in 1896 a successful case, published the following table which pleads with no uncertain voice for early operation :—

Elapsed time	Total cases	Recovered	Deaths	Mortality, per cent.
Under 12 hours ..	23	14	9	39
From 12 to 24 hours	17	4	13	76
Over 24 hours ..	32	4	28	87

Mayo Robson and Moynihan^c in 1904 published the following table, based on cases collected from various sources, which confirms in a striking way Weir's statistics, and like his table emphasises the necessity for early interference :—

Time elapsed	Total cases	Recovered	Died	Percentage of deaths
Under 12 hours ..	49	35	14	28.5
From 12 to 24 hours	33	12	21	63.6
From 24 to 36 hours	16	2	14	87.5
From 36 to 48 hours	2	—	2	100.0

If the tables be compared it will be observed that there is a marked diminution in the mortality of all cases operated on within twenty-four hours of the occurrence of perforation. This advance may fairly be attributed to increasing surgical experience and improvements in surgical technique during the eight years which separate the tables. It will further be noticed that neither experience nor improved technique

^a Kriege. Berl. klin. Woch. December, 1892. Quoted by Mayo Robson and Moynihan.

^b Weir and Foote. The Surgical Treatment of Round Ulcer of the Stomach and its Sequelæ, with an Account of a Case successfully treated by Laparotomy. Medical News. April 25th and May 2nd, 1896. Quoted by Einhorn. P. 234-236.

^c Mayo Robson and Moynihan. P. 313.

has the slightest influence on the mortality of cases not dealt with for more than twenty-four hours after perforation. Early diagnosis is therefore all-important. The responsibility for this is on the medical attendant, and its difficulties far outweigh those connected with the surgical technique. It is not too much to expect that of all cases of perforated gastric ulcer recognised and suitably treated within twelve hours not more than one in four will prove fatal.

To such a group belongs the following case, in which the patient's life was saved by the prompt action of her medical attendant and the successful technique of the operating surgeon :—

About 11 p.m. on Tuesday, 21st March, 1899, I was asked by my friend, Dr. Wm. A. Winter, to see, in consultation with him, a patient who, to his mind, presented symptoms of perforative peritonitis. She was a girl, aged nineteen, and by occupation a servant. I then, and subsequently, obtained from her the following history :—She had always enjoyed good health till September, 1897, when she suffered from pain in the epigastrium, extending into the left hypochondrium and outwards to the left shoulder blade. The pain she noticed was increased by eating any kind of heavy pudding, meat, or much vegetable, and was relieved by drinking hot liquids or by emesis. She vomited spontaneously nearly every day, but never induced emesis for the purpose of relieving pain. She suffered so much from the pain that she remained away from service from December, 1897, to November, 1898. Towards the close of 1898 the intensity of the pain had so greatly diminished that she resumed work, and was quite free from pain for some time previous to 21st March, 1899. On that day she arose feeling quite well. At 8 a.m. she had breakfast, consisting of tea, bread and butter. About noon she was seized with severe pain in the epigastrium and left hypochondrium, which lasted for 10 or 15 minutes, and was relieved by taking hot milk. At 2 45 she had dinner, which consisted of an egg, potatoes, and tapioca pudding with currants, and half a pint of milk. After dinner she suffered no pain, but felt as if she would not digest her food. She took her tea at 5 p.m., consisting of bread and butter, cake, and two large cups of tea. These three meals and the

milk at noon include all the food, liquid and solid, she took on this particular day. She felt quite comfortable after tea, and at 9 p.m. she went to bed. She lay down on her left side, but had to sit up at once as she was seized with severe pain in the epigastrium and left hypochondrium. The pain became worse, and spread across to the right hypochondrium and down the left side below the level of the umbilicus. She described it as like a cramp, doubling her in two and smothering her. She vomited twice, and then dry retching set in. Her agonising shouts attracted the attention of her mistress, who applied poultices and stupes, but finding that the pain was no better sent for Dr. Winter. After examination, as he suspected perforation, he advisedly gave her only a small hypodermic of morphin so as not to mask the symptoms. I saw her in consultation with Dr. Winter about 11 20 p.m. She was anæmic, pale, but well nourished, and was evidently suffering most acute pain. She lay on her back with her thighs slightly flexed on the abdomen. Her respirations were frequent and entirely thoracic. The pulse was 96 to 100, and very small in volume. The skin was moist and the extremities cold. She frequently exclaimed that she was dying. An examination of the abdomen did not disclose any marked distension. On palpation she complained of severe pain. On percussion there was not a uniform tympanitic note over the abdomen, but there was undoubted diminution of the area of hepatic dulness, as a resonant note was audible in the right nipple line in the lower intercostal spaces. I could only confirm Dr. Winter's suspicion of gastric perforation, and we both felt that the only chance of saving her life was immediate operative interference. Accordingly, she was assisted into a cab and driven slowly, as every jolt was acutely painful, to the City of Dublin Hospital, which was fortunately not more than half a mile distant. On arrival at the hospital, a little after midnight, she was put to bed with hot jars around her. A stimulating enema was administered, and, as our diagnosis and line of treatment were quite clear, a second hypodermic of morphin was administered, and an antiseptic dressing applied to the abdomen. My colleague, Mr. Jameson Johnston, Surgeon to the City of Dublin Hospital, came at once on being sent for, and about 2 a.m. the patient was placed on the operation table. Just

before the abdomen was opened I again examined the area of hepatic dulness and found that it was now completely absent, and in its stead there was a loud tympanitic note. The incision, some two or three inches long, was between the umbilicus and ensiform cartilage. The moment the peritoneum was cut a fizz of gas confirmed the diagnosis of free air in the abdominal cavity. This was followed by the escape of a quantity of turbid fluid. After a little search the perforation, as large as a threepenny piece, was found on the anterior wall of the stomach, close to the cardiac orifice. The ulcer had made, an abortive attempt to form permanent adhesions with the under surface of the left lobe of the liver. On drawing down the stomach as far as possible into the wound it was found that the tissues around the ulcer were so softened that considerable difficulty was experienced in so placing sutures that they would hold. The perforation was eventually closed by a series of Lembert's sutures, and a portion of the omentum was stitched over it. The peritoneal cavity was now flushed out twice with warm sterilised water and carefully swabbed. The wound in the abdominal wall was then closed, except at the lower angle, where a gauze drain was inserted in case of any leakage from the stomach, and the patient was put back to bed. The total duration of the operation was about two hours. Her temperature before the operation was 98°, and at 4 45 a.m. it was 97.8°. Her pulse had increased in frequency from the time perforation took place, and shortly after the operation was 124. For the succeeding eleven days the course of the case was most satisfactory. The only trouble we had was frequent vomiting, which, however, *post hoc* or *propter hoc*, ceased on the third day after the operation, when the gauze drain was removed. The temperature for these eleven days was practically normal, and the pulse fell to 104. She passed urine without the aid of a catheter immediately before, and subsequent to, the operation. It contained an enormous quantity of indican, but no albumen or sugar. The wound healed by first intention along its entire length, except at the lower angle, where the gauze drain was. In fact, we had commenced to congratulate ourselves that we were out of the wood as her temperature had been normal for so long, and she was taking solid food by the mouth without any discomfort. However, on the

evening of the twelfth day, the temperature was 101° F., and on the thirteenth day, 102° F., and she developed a slight cough and some pain in the left side. The cause of these symptoms was not at first quite evident, but the detection some days later of impaired resonance over the lower lobe of the left lung, with bronchial respiration and crepitation, enabled us to make a diagnosis of pneumonia. She made an excellent recovery from this complication. The further course of the case was uneventful, and she left the hospital on the 20th May—sixty days after her admission.

Subsequent History.—There is a feeling prevalent in the minds of some physicians that, though surgical interference may save life in a case of perforated gastric ulcer, the subsequent history of the patient discloses an unsatisfactory state of affairs owing to pain, vomiting, and gastric discomfort. My patient left town immediately after her discharge from the hospital, and I have never seen her since. I have, however, had several communications from her, which may be summarised as follow:—

21st July, 1899.—She reported that she was much better and stronger since returning to her home in the South of Ireland. She asked for permission to eat vegetables. She had slight pain in her left side.

2nd August, 1899.—Pain very bad in stomach, chest, and back; severe retching.

13th September, 1899.—Pain was so severe that she was obliged to go into the North Infirmary, Cork, under Dr. Donovan's care, who kept her on milk and chicken tea for some six weeks. At this date she was able to sit up for a little each day, and the pain was subsiding.

31st January, 1901.—Spent eight months in all in the North Infirmary. For the past six months has been feeling in "the best of health." No return of the pain, and never felt better.

23rd May, 1901.—Has returned to domestic service. Never suffers pain, and felt quite well.

15th April, 1904.—For past twenty months absolutely no pain; can eat everything. "Never remember being so strong." "Can do anything and it does not tire me." "I sometimes

think I am a different girl, and that I never have been ill ; the only thing there is to remind me of the operation is the mark of the stitches."

From this record it is evident that recovery from the operation does not necessarily imply complete restoration to health. Careful dieting and medicinal treatment were required for nearly two years subsequent to the perforation. The ultimate result was, however, entirely satisfactory, doubtless largely due to the attention she received while under Dr. Donovan's care in the North Infirmary, Cork.

The cause of the persistence or recurrence of the symptoms may be attributed either to the primary ulcer or, as is not very uncommon, to the presence of multiple ulcers.

The points of greatest interest in this case may be summarised as follow :—

1. A clear history of gastric trouble for eighteen months previous.
2. The typical onset of the symptoms : pain, vomiting, and collapse.
3. The abolition of the area of hepatic dulness.
4. A practically normal temperature, with a pulse increasing in frequency.
5. The occurrence of perforation while the stomach contained a quantity of food, indicated by the amount of fluid, milk coagula, &c., found in the abdominal cavity.
6. The removal of a patient in the more or less erect position in a cab over a tolerably rough road leading necessarily to the diffusion of the extravasated contents through the abdominal cavity.
7. Opening the abdomen and securing the perforation within *six* hours after rupture took place.
8. The great resisting power of the peritoneum to certain kinds of irritants, indicated by the very few signs of peritonitis present when the abdomen was opened, and, although it could not be contended that all the extravasated material was removed by douching and swabbing, the complete absence of any signs suggestive of peritonitis subsequent to the operation.

9. The development of pneumonia eleven days after the operation.

10. The temporary subsidence of all gastric symptoms a few days after the operation.

The first, and in many cases the most difficult, step in rescuing cases such as I have described from death is the early recognition of the lesion. To surmise that a perforation has taken place when the patient is bathed in cold sweat, the pulse almost imperceptible at the wrist, the extremities clammy and livid, and the abdomen distended and tympanitic, does not, perhaps, require much diagnostic ability, and it requires equally little prognostic intuition to know that no medical or surgical skill can save such a case.

If surgical interference is to have a fair chance, it must be given an opportunity before the patient is moribund. The early recognition of perforative peritonitis, and its differential diagnosis from conditions producing somewhat similar symptoms, such as internal strangulation, acute pancreatitis, or a ruptured tubal pregnancy, demand care and skill.

In enumerating what appear to me the most important points in the diagnosis of perforation I limit my observations to those cases in which the ulcer is situated on the anterior wall of the stomach or duodenum, and in which perforation takes place into the general abdominal cavity.

I. *Previous History*.—In most cases, as in the one above recorded, there is a distinct history of old standing gastric trouble. In some an indubitable history of *ulcus ventriculi* is forthcoming, but in others the most careful inquiry fails to elicit any symptom of gastric disorder. When Resident Medical Officer in Sir P. Dun's Hospital I saw a case of fatal perforative peritonitis from an ulcer on the anterior wall of the stomach, in which, owing to a clear history of the absence of any gastric disturbance, a diagnosis of perforative appendicitis was made, and the abdomen opened below the umbilicus.

II. *The Sudden Onset of Symptoms*.—The patient is generally in comparatively good health, and about her ordinary employ-

ment when perforation occurs. She can fix accurately the moment at which the symptoms commenced.

The following are the more striking symptoms and signs :—

(a) *Pain*.—This is most acute, and, though at first confined to the neighbourhood of the perforation, gradually spreads all over the abdomen. The patient commonly describes it as doubling her in two. It is increased rather than relieved by pressure. There are few, if any, conditions in which the pain is more sudden in its onset or agonising in its nature than in perforation. It persists till shortly before death, when the sensorium is so benumbed that the patient, though mentally perfectly clear, is no longer conscious of it.

(b) *Vomiting*.—In the cases of perforation of the anterior wall of either the stomach or the duodenum which have come under my notice, the patient has nearly always vomited a portion of the gastric contents. It is not, however, a constant symptom. Finney finds it recorded in 40 per cent. of the cases, Fenwick in 29 per cent.

(c) *Collapse*.—In a very short time after the onset of the pain the patient becomes pale, perspires, and her extremities become cold.

(d) *Pulse* is small in volume, compressible, and becomes more and more frequent as the hours pass by. This sign is of considerable importance, and is not masked, so far as I have had an opportunity of observing, by an apparent though fallacious temporary improvement which may follow on the administration of morphin and stimulants.

The *Temperature* is about normal shortly after perforation has occurred. It may, after some hours, rise a little, but in the most rapidly fatal cases the temperature will be sub-normal, though a *post-mortem* examination reveals a most acute purulent peritonitis.

The *Respirations* are increased in frequency, superficial, entirely thoracic, and commonly accompanied by marked activity of the *alæ nasi*.

The *Decubitus* is generally dorsal, and in some cases the lower limbs are flexed.

Urine.—Cases of perforation of the stomach in which there

was suppression have been recorded by Sedgwick,* and he quotes Devergie as having noticed the same phenomenon. In none of the cases which have come under my own observation have I found this symptom, but in those who have survived perforation for some hours or so I have found indican in the urine in considerable amount.

III. An examination of the abdomen reveals on :—

1. *Inspection*.—Immobility of the anterior abdominal wall, and, perhaps, some slight retraction for a brief period, and then distension as free gas accumulates in the cavity.

2. *Palpation*.—Owing to the pain produced by pressure no information, beyond the rigidity of the abdominal muscles, will be obtainable by this method.

3. *Percussion*.—As gas escapes into the abdominal cavity it tends to obliterate the area of hepatic dulness by separating the liver from the anterior abdominal wall. Consequently a gradual abolition of the area of liver dulness becomes a very valuable sign, suggestive of free gas in the cavity. It is not contended for a moment that this is the only way in which liver dulness may be lost, as in some case of tympanites the bowel may possibly slip up in front of the liver, or, as I think more probable, so tilt the liver on its horizontal axis as to make its thin inferior margin anterior.

In some cases gas may so accumulate in the abdominal cavity as to produce a uniformly tympanitic note all over the abdomen.

When the patient is seen shortly after perforation has taken place it is often impossible to make a certain diagnosis. A careful record should be made of the physical signs and symptoms, with special reference to the frequency of the pulse and respirations, extent of the liver dulness, and condition of the abdominal walls. The patient is doubtless in severe pain. Hot external applications may be applied, but it is most important that the symptoms should not be masked by the administration of morphin. A second visit should be paid in the course of a couple of hours, and the symptoms and signs again recorded, and compared with the previous observa-

* Sedgwick. *Lancet*. Vol. I. P. 758. 1878.

tion. It will be found, as a rule, now possible to make a differential diagnosis.

In discussing with the relatives the necessity for operative interference, the question of recovery without operation is certain to be raised.

I have examined carefully the literature of this subject, and can find recorded only nine cases which presented symptoms indicative of a perforation of a gastric ulcer and recovered. Of these, three died subsequently from this affection, but in only one of them did the *post-mortem* examination seem to confirm the original diagnosis. This case is reported by Hughes, Ray, and Hilton in "Guy's Hospital Reports" for 1846 :—
"A servant girl was suddenly seized with all the symptoms of perforation. Fortunately she had eaten nothing for four hours before this, and then only gruel. She was put under the influence of opium, was kept in the recumbent posture, and was fed by the rectum. She was discharged apparently cured after 52 days. Two months afterwards she was again suddenly seized with the same symptoms, and she died in four hours. The autopsy showed, in addition to a recent peritonitis, evidence of old peritonitis. There were adhesions of the coils of intestines with each other, and between the stomach and adjacent viscera. In the stomach were found a cicatrix and two open ulcers, one of which had perforated."

Such a record out of the many fatal cases of gastric ulcer which have been reported fully justifies Mr. Treves when he says, "The lover of the curious will search long before he can find in the literature of perforative peritonitis the account of a well-authenticated recovery without operative interference;" and gives, for all practical purposes, a direct negative to the inquiry in such cases—Is there any hope?

Two courses are open to us in treating cases of suspected perforation. We may reject operative interference, still stand by traditions formerly hallowed by time and authority, and follow Heister, who, writing in 1739 on perforation of the bowel, could only advise that the patient be kept quiet, that he be urged to eat abstemiously, and to lie upon his belly, and that the rest be left to Divine Providence and the strength

of the constitution. Or, mindful of the recent great advances in abdominal surgery, of the very slight risk attending an exploratory laparotomy, of the fatal consequences of a perforation when left alone, we may make up our minds EARLY that the case calls for an abdominal section.

ART. V.—*The Treatment of Gastric Vomiting with Oxalate of Cerium.** By THOS. CHARLES AUGUSTUS SWEETNAM, M.D., B.Ch., B.A.O., B.A., Univ. Dubl., House Surgeon, the Infirmary, Stockport.

CERIUM OXALATE was at one time recommended as a remedy in the hyperemesis of pregnancy. This vomiting is generally held to be due to the passive movements of an enlarged uterus against the intestines, and not to any changes in the gastric mucous membrane; therefore no marked improvement could be expected from the use of a drug which acts directly on the stomach itself. In practice the use of this salt was not followed by much improvement in the majority of cases, and it gradually fell into disrepute.

Within the last few months I have been using it largely in cases of vomiting due directly to gastric disease, usually giving six-grain doses three times a day in adult patients, combined with ten-grain doses of carbonate of bismuth.

In almost every case the result has been most satisfactory; and in several instances, where bismuth alone has failed to cause any marked improvement, a rapid change for the better has appeared when cerium oxalate has been added to the medicine.

In gastric ulcer the pain is relieved, and the vomiting ceases almost immediately; the same result occurs in chronic catarrhal gastritis, especially the form which is so common amongst badly nourished young females, whose work deprives them of their proper quantity of fresh air. The immediate relief is then followed by a rapid improvement in the general

* A Thesis read for the Degree of Doctor of Medicine of the University of Dublin, December, 1905.

condition ; very soon the patients are able to take a fairly liberal diet without the slightest discomfort or return of the symptoms, and the majority of the cases may be discharged as cured in a much shorter time than those treated with bismuth alone.

In cancer of the stomach, although a permanent cure cannot be expected, the symptoms are relieved and the patient's life is prolonged and made far more comfortable than by any other means ; the pain is lessened, hæmatemesis ceases, and patients who have been unable to retain the smallest quantity of food taken by the mouth are soon able to retain several pints of milk per diem, and also small quantities of the prepared farinaceous foods.

This, of course, does not hold good in cases where the pyloric region is largely involved, and where the symptoms are mainly due to a mechanical obstruction of that opening ; then relief can only be obtained by means of surgical treatment.

In order to illustrate the remarkable benefit derived from the treatment of malignant disease of the stomach with this drug, I shall give a brief sketch of the clinical history of one case in which it was used :—

A labouring man, aged forty-four years, was found to be suffering from gastric carcinoma ; when first seen he had been ill for two months, and his whole condition was extremely bad. He had great pain in the epigastrium, inability to retain anything taken by the mouth, except the smallest quantities of liquid nourishment ; great loss of flesh, extreme weakness and some constipation. On examination he was found to be very emaciated, his complexion was sallow, but the conjunctivæ were not stained. The stomach was dilated slightly, but no tumour could be felt ; there was coffee-ground vomiting, but the vomited matter contained no free hydrochloric acid.

For nine days he was treated with a mixture containing bismuth carbonate and bicarbonate of sodium, and was fed with nutrient enemata, only very small quantities of peptonised milk being given by the mouth occasionally. His condition did not materially improve, and the coffee-ground vomiting continued. After this

the medicine was changed, and the following mixture given three times a day :—

R Bismuthi Carbonatis,	gr. 10
Cerii Oxalatis,	gr. 6
Mucilaginis,	3ss.
Aquæ, ad	3ss.

The vomiting ceased almost immediately, the pain was greatly diminished, and in a few days he was able to take small quantities of peptonised milk by the mouth without the slightest discomfort. Shortly after this a raw beaten up egg was added to the "feedings," and then some Benger's food, all of which he took well ; by this time the nutrient enemata had been discontinued. Since then he has only had slight attacks of pain, and the vomiting has only recurred on rare occasions, never being of the coffee-ground character ; his general condition has also slightly improved up to the time of writing.

Besides using cerium oxalate in the cases above described, I have on a few occasions used it in smaller doses in cases of acute gastro-enteritis (not of the zymotic type) occurring in children, and have obtained very good results.

The action of this drug is probably the same as that of the bismuth salts—namely, a sedative and mild astringent to the inflamed gastric mucous membrane ; but it is quite possible, and, indeed, probable, that it has an additional action due to slight radio-activity, or to the presence of a very minute trace of radium. As generally obtained the salt is not pure, but contains an appreciable quantity of lanthanum and didymium oxalates ; and, as most of the rare earths are slightly radio-active, it is reasonable to suppose that the same property is here present. This view is borne out by the beneficial effects produced in malignant disease, for, although any substance which would sooth an inflamed or ulcerated surface would to a certain extent relieve the distressing symptoms of gastric carcinoma, it would hardly produce such marked effects as were seen in the case mentioned.

In conclusion, we may say that cerium oxalate may be used in all cases where the use of bismuth is indicated ; but that in many cases where bismuth fails or produces only slight results it may be trusted to effect a speedy cure, or at least afford great relief.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Diagnostics of Internal Medicine. A Clinical Treatise upon the Recognised Principles of Medical Diagnosis, prepared for the use of Students and Practitioners of Medicine. By GLENBROOK REEVE BUTLER, Sc.D., M.D.; Chief of the Second Medical Division, Methodist Episcopal Hospital, &c. With five coloured Plates, and 288 Illustrations and Charts in the Text. Second Revised Edition. London: Sidney Appleton. 1905.

THE volume now before us is one of the rapidly increasing number of books which deal with the art of diagnosis in medicine. The speed with which these books make their appearance, and the eagerness with which they are bought up, if one can judge of that by the comparatively short time that elapses before a second or even third edition is reached, is evidence of the fact that they are suitable to the needs of the busy practitioner. To our own mind, indeed, they are all written from the wrong point of view, and err essentially in that to make use of them in a proper manner it is necessary to be well acquainted with a wider range of subjects than they deal with. In other words, there are so few pathognomonic symptoms that it must often lead to bewilderment to find, on referring to a book of this nature, that any particular symptom concerning which information is required may be produced by from ten to fifty different causes, and such bewilderment can be avoided only if the reader is already aware of the means of distinguishing between these different causes. This is, however, only a personal view, and must not be regarded as detracting from the value of the present work to those who appreciate such aids as it can afford. It is perhaps somewhat better than the majority of its congeners in that it makes a special feature of differential diagnosis, and it certainly contains a vast amount of information. If

an attempt were made to find fault with it we would unhesitatingly say, indeed, that too much has been attempted. Not content with describing fully the ordinary methods of examination, the author has also written paragraphs, or short chapters, on the special subjects of cryoscopic and X-ray examinations, while from the clinical point of view even mental diseases are described. These, and some other subjects which we might mention, can be dealt with properly only in works especially devoted to them, and no one could obtain a working knowledge of any use to himself or to others from the data which are here given. It would surely then have been far better to omit them altogether, rather than in attempting completeness to give inadequate information.

One or two curious errors have crept into the text; thus on page 986 we find it stated, doubtless owing to a slip, that "the disease (hæmophilia) is more common in females than in males," and again on page 1113 it is said, in reference to myositis ossificans, that "after a year or more death ensues." The word "more" undoubtedly saves the author from inaccuracy, but we doubt if he is aware that patients may live for thirty years after well marked symptoms have shown themselves. The statement is at the least misleading. Again, the term "mania a potu" appears to us to be wrongly applied as identical with "delirium tremens."

One or two other slips have occurred, but this is hardly to be wondered at in a book of nearly 1,200 pages, and, indeed, considering the number of facts included in the text, the paucity of errors is a matter for congratulation.

The plates and illustrations are beyond reproach, but we cannot help wondering why in this, as in many other American works, the female figure is selected as the basis for illustrations. Perhaps some remark of this nature has before been made, as the writer is careful to inform us that most of the photographs have been imported, whatever that may mean.

On reading over what we have written the thought strikes us that perhaps we have been too severe, but if so we must excuse ourselves by saying that it would be impossible to refer to the many excellent points in the book, and that, consequently, it has been necessary to dwell upon the com-

paratively few defects. In spite of what we have said we can cordially recommend the work to those who wish to bring their knowledge up to date, and prefer to do so by occasional references concerning cases on hand rather than by a systematic study of medical treatises.

The Nature and Treatment of Cancer (some Methods of Hypodermic Medication in the Treatment of Inoperable Cancer).

By JOHN A. SHAW-MACKENZIE, M.D. London. Second Edition. Revised and Enlarged. London: Baillière, Tindall & Cox. 1905.

It is somewhat difficult to review a book of this nature which in the space of 80 short pages professes to deal with and explain the nature of cancer, and to expound a satisfactory treatment for the disease. The general feeling, indeed, of the scientific reader while perusing its pages must be one of thankfulness that so serious a subject can be approached in so light a vein, and of wonder that a sufficiency of readers was obtained for the first edition to justify the production of the present volume. The writer, indeed, in all seriousness addresses himself to the profession, but we fancy that his quasi-scientific empiricism must have found a responsive note in the minds of the sensation-loving public rather than in the open-minded scepticism of educated readers.

The author's treatment of cancer consists in the hypodermic injection of various substances, and the first with which he deals is the old but discarded remedy, Chian turpentine. As a proof of the value of this drug two cases are put on record, both of which died soon after the discontinuance of the treatment, though, indeed, it is asserted that in both cases improvement was produced and growth of the tumour was arrested by the treatment. Comment on the records, with the above termination, is however needless. The next substance to be vaunted as a cure is soap solution, as advocated by Mr. Webb, of Melbourne, who founds his treatment on the unsupported cholesterin hypothesis which he published in the *Lancet* some years ago. On examining the reported cases in advocacy of his views, however, it is found that the autopsy findings form the conclusion of most of them. Little more need be said

about the book, which deals also with hypodermic injections of trypsin, with notes on diet, and with the pre-embryonic theory of cancer; but we may state our belief that such publications tend rather to cloud the ideas of the public on a most important subject and to throw disrepute on medical work than to perform any real service. They cannot, however, lead astray any true investigators.

Electrolysis in the Treatment of Facial and other Blemishes.

By J. D. P. M'LATCHIE, M.B., C.M.; Clinical Assistant, Western Skin Hospital. London: Henry J. Glaisher. 1905.

THIS little *brochure* contains nothing either very new or unusual, but is an interesting summary of the uses of electrolysis in the treatment of such conditions as hypertrichosis, dilated capillaries, moles, warts and similar facial disfigurements. The author gives minute details concerning the technique of the various applications, and states what may and what may not be expected by their use. He offers a word of caution as regards prognosis in all such cases, particularly in reference to scurvy. We have no doubt that it will prove useful both to skin specialists and to the general practitioner, and we can recommend it to all who are interested in the subject, and are desirous of a few practical hints.

A Manual of Chemistry: Inorganic and Organic. Covering the Synopsis of the Conjoint Board and the Society of Apothecaries. By ARTHUR P. LUFF, M.D., B.Sc. (Lond.), F.R.C.P., F.I.C.; and FREDERIC JAMES M. PAGE, B.Sc. (Lond.), F.I.C. With 43 Illustrations. Third Edition, revised throughout. London, Paris, New York and Melbourne: Cassell & Co. MCMV. Cr. 8vo. Pp. xv + 555.

ON more than one occasion we have had pleasure in drawing attention to the merits of this work. It has had a very successful career since the publication of the first edition in May, 1892. That issue was reprinted in 1895, and again in 1897. The second and revised edition was published in 1900

and reprinted in 1902 and again in 1904, and now a third and thoroughly revised edition bears the date 1905 on its title page.

In this new edition the chief alterations are as follow :— Part I. has been re-arranged as well as brought up to date. In Part IV. short descriptions of the determinations of the boiling-point and melting-point, and the connection between the structure of a substance and its behaviour to polarised light (stereo-isomerism), have been inserted; and in Chapter XI. will be found the composition of various chemical substances which have recently come into use as drugs (aspirin, heroin, mesotan, veronal, &c.). To the Practical Part a brief account of volumetric analysis has been added, and the tables have been extended so as to include the analysis of a mixture containing two metals and one acid.

The authors have a singular knack of conveying information in a simple way, and under their magic touch atoms and molecules, dyads and pentads, alcohols and aldehydes, ethers and esters, ketones, amines, and amides, become intelligible to ordinary mortals in the shape of students of medicine. To these and to many others we heartily commend this *Manual of Chemistry*.

A Text-book of Pathology for Practitioners and Students.

By JOSEPH M'FARLAND, M.D.; Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia; Pathologist to the Philadelphia Hospital and to the Medico-Chirurgical Hospital, Philadelphia. With 350 Illustrations. Philadelphia: Saunders & Co. 1904. Pp. 818.

THIS is a useful book, clearly written and well illustrated. As it is intended mainly for students the author has done well in confining himself for the most part to matters which are fairly well known, while he has the courage to briefly dismiss subjects whose significance is not clear with the statement that the matter is not yet understood.

The work is divided into two parts—the first treating of general and the second of special pathology. The latter part treats of all kinds of diseases, both medical

and surgical, including skin diseases, but excluding diseases of the eye and ear. In order to make the book complete it is of course necessary to refer to diseases of the skin, but from a practical point of view it seems questionable whether much useful information can be obtained from such a very brief account of the subject as is here presented.

The illustrations form an excellent feature of the book. They are not reproductions of photographs, but are well-executed and instructive wood-cuts, which, in our opinion, are far more useful than photographs, especially in a work intended for students. Some of them are coloured, and the colouring as a rule is well done, and the colours not too vivid.

In a work such as that before us we do not look for much novelty—in fact it would be out of place. But we think Dr. M'Farland has succeeded in giving a satisfactory and reliable account of his subject. He is not by any means an admirer of any new theory simply because it is novel—consider the quiet irony with which he sums up the account of the search for the exciting cause of cancer:—"From this review of the literature it will be evident that with the evolution of parasitology theories respecting the infectiousness of carcinoma have kept pace. When men were most interested in the study of bacteria they found them in the tumours: when protozoa were found to infect the epithelial cells of the lower animals, and their attention was turned to the sporozoa, they naturally looked for them in carcinoma: and when the blastomycetes were found to be of some importance, they were not slow to produce yeasts cultivated from the tumours." Such a judicially-minded writer gives us confidence, and we can recommend his Text-book of Pathology.

Journal médical du littoral méditerranéen. No. 3. 1905.

THIS, the official journal of the *Société médicale du littoral méditerranéen*, appears every three months, and contains, besides the official records of the meetings of the Society,

original papers on the climate of the French Riviera and its uses in the treatment of disease.

Between Toulon and Mentone lies a great coast-line studded with health resorts, characterised by a purity of atmosphere, an equable temperature, and an intensity of solar illumination unknown in less favoured northern latitudes. To popularise these resorts is the object of the journal, and we commend its perusal to those who seek information in regard to the climatology of the *Côte d'Azur*.

The Food Factor in Disease: Being an Investigation into the Humoral Causation, Meaning, Mechanism, and Rational Treatment, Preventive and Curative, of the Paroxysmal Neuroses (Migraine, Asthma, Angina Pectoris, Epilepsy, &c.), Bilious Attacks, Gout, Catarrhal and other Affections, High Blood-pressure, Circulatory, Renal and other Degenerations. By FRANCIS HARE, M.D.; late Consulting Physician to the Brisbane General Hospital; Visiting Physician to the Diamantina Hospital for Chronic Diseases, Brisbane; Inspector-General of Hospitals for Queensland. In two volumes. London, New York and Bombay: Longmans, Green & Co. 1905. 8vo. Vol. I., pp. xiv + 497; Vol. II., pp. viii + 535.

THESE beautifully printed and tastefully bound volumes present, in addition to many sterling features of their contained text, the now decidedly exceptional ones of traversing a wide and fruitful region of clinical observation and research without invoking the usual aid and illumination derived from the now all-pervading bacteriological pathology. We contemplated this peculiarity, as soon as we had become aware of its presence, with a broad and deep sigh of relief! In the opening paragraph of his thoroughly philosophic preface the author quotes from Buckle:—

“I cannot but regard as the worst intellectual symptom of this great country, what I must venture to call the imperfect education of physical philosophers . . . It cannot be concealed that they display an inordinate respect for experiments, an undue love of minute detail and a disposition to overrate inventors of new instruments and the discoverers of

new, but often insignificant, facts. Their predecessors of the seventeenth century, by using hypotheses more boldly, and by indulging their imagination more frequently, did certainly effect greater things, in comparison with the then state of knowledge, than our contemporaries with much superior resources have been able to achieve. The magnificent generalisations of Newton and Harvey could never have been compiled in an age absorbed in one unvarying round of experiments and observations. We are in that predicament that our facts have outstripped our knowledge and are now encumbering its march. The publications of our scientific institutions and of our scientific authors overflow with minute and countless details which perplex the judgment and which no memory can retain. In vain do we demand that they should be generalised and reduced into order. Instead of that the heap continues to swell. We want ideas, and we get more facts. We hear constantly of what nature is doing, but we rarely hear of what man is thinking."

If the above remarks were true in Buckle's own day—in the first half of the nineteenth century—how immeasurably more appropriate are they to the existing state of scientific research and scientific theory in the opening years of the twentieth! In the present work the author has adopted the now very unusual, if not quite absolutely new, method of taking a deductive view of diseases—with its causes, course, and processes—and approaches the solution of pathological problems from the physiological side. As he himself says:—"Manifestly, in order to bridge the interval between these two branches of human biology, hypotheses are necessary. Many have been formed. Some of these seem firmly substantiated by fact, in others, the basis of fact is slender; while a few are unsupported by fact. But none, so far as I myself can see, are inconsistent with fact."

In illustration, and attempted confirmation, of his theories, Dr. Hare avoids the usual custom of the innovator in corresponding proceedings: "To draw largely for illustration and confirmatory evidence upon his own experience, this would have been possible in the present instance, but I have considered it inexpedient. The existence of a dominant idea in the mind of an observer tends inevitably, even in perfect

honesty, to some coloration of fact. But no taint of suspicion can cling to observations already recorded in medical literature—observations collected in illustration of different and divergent conceptions. Accordingly, in the selection of evidence, I have in nearly all cases given preference to the observations of others, adducing those of my own only where gaps existed.” Dr. Hare attributes an enormous influence to the nature and quantity of the food of the individual in the causation and development of disease. He mostly regards food-stuffs as divisible into two groups—carbonaceous and nitrogenous. The arguments employed, and the illustrations used to emphasise their value, are far too lengthy to be satisfactorily discussed within the limits of an ordinary review. We accordingly recommend our readers to read and judge for themselves. The subject is surely one of the highest importance; and Dr. Hare is always worth listening to, if not invariably convincing. Some may object that his views are in some measure retrograde; perhaps they will not always be less valuable on that account alone. All recent forward movements have not been made on a firm path of progress.

In his first chapter, the author has “endeavoured to contrast with each other some of the fundamental laws of nitrogenous and carbonaceous metabolism; and to shew thereby, and from the analogy of the steam engine, that any excess of nitrogenous material in the blood tends to be automatically excreted, but that a carbonaceous excess tends, in some circumstances, to accumulate in the blood.” This quotation furnishes the keynote of the whole of the clinical and pathological views of the writer.

The Principles and Practice of Medicine: For the Use of Students and Practitioners. By WILLIAM OSLER, M.D., F.R.S., F.R.C.P.; Regius Professor of Medicine, Oxford University; Honorary Professor of Medicine, Johns Hopkins University. Sixth Edition. London: Appleton. 1905. Pp. 1143.

It would be simple foolishness on our part to endeavour in this article to commend a book, now in its sixth edition, which is generally and, we hold, rightly looked upon as the

best work extant in the English language on the Practice of Medicine. Our aim shall be less ambitious : we will endeavour merely to point out some of the alterations and improvements that we find in this edition.

This book differs very considerably from the last issue, which appeared in 1903. In the first place, the type has been changed and the size of the page somewhat increased, so that, although the general appearance of the volume is not altered, space has been found for a large amount of new material. In the second place, the general arrangement of the book has been considerably changed. The first section is devoted to Diseases due to Animal Parasites. Under this head, as well as diseases caused by worms and insects, are included those conditions which are due to protozoa, such as amœbic dysentery and malarial fever. New articles have been written on trypanosomiasis and other tropical diseases.

The articles on Gout and Diabetes have been greatly altered, and much recent work on the pathology of these diseases is alluded to, so that they are brought fully up to date. The section on the Nervous System has in many parts been greatly altered. For example, the article on General Paralysis has been entirely re-written, and much new matter introduced. We think it, however, a pity that some account is not given of the ordinary forms of mental disease, such as Melancholia and Dementia. There are chapters on Hysteria and Neurasthenia, which are just as purely mental diseases as is Mania ; in practice it is often most difficult to distinguish between Hysteria and Mental Disease, and we believe that it would have increased the value of the work, especially to the many practitioners who never think of buying a book on mental disease, if there had been a chapter on the symptoms, diagnosis, and general principles of treatment of disorders of the mind. We well remember how, while a student, our first acquaintance with mental disease was obtained from that beautifully-written section in Bristowe's Practice of Medicine.

While we have called attention to a few articles which have specially struck us, it must be understood that the book has been practically re-written in very many sections and thoroughly brought up to date throughout. Whoever procures Professor Osler's sixth edition may be confident that

he is obtaining an account of all that is really best and soundest in medicine.

Medical Electricity and Light Treatment. By KATE NEALE, Sister-in-Charge of the Actino-Therapeutic Department, Guy's Hospital. London: The Scientific Press, Ltd.

THIS little book is intended for nurses whose duty it is to carry out the treatment ordered for patients in the electro-therapeutic department of a large hospital.

The manual is divided into chapters dealing with treatment by Galvanism, Faradism, High Frequency, X-rays, Finsen Light, &c. Under each heading is described:—

1. The method of applying instruments, and a description of the apparatus used. (In this connection there are twenty-one illustrations.) 2. Practical points in treatment, and the dangers to be guarded against. 3. The diseases suitable for treatment by the various methods employed.

Though the book is short, and deals with a number of different kinds of treatment, yet the authoress makes the most of the ninety-eight pages at her disposal, and succeeds in achieving the object she has set before her in writing a lucid practical handbook for nurses.

Nothnagel's Encyclopedia of Practical Medicine. Diseases of the Kidneys and of the Spleen: Hæmorrhagic Diseases. By DR. H. SENATOR and DR. M. LITTEN. Edited with additions by JAMES B. HERRICK, M.D., Professor of Medicine, Rush Medical College, University of Chicago. Authorised translation from the German, under the editorial supervision of ALFRED STENGEL, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Philadelphia and London: W. B. Saunders & Co. 1905. 8vo. Pp. 815.

THREE monographs are included in this volume of the Nothnagel Practice of Medicine. The distinguished Professor of Medicine in the University of Berlin, Dr. H. Senator, is well known throughout the civilised world, and not the least noteworthy of his contributions to Medicine is his classical work on Diseases of the Kidneys. It is the English transla-

tion of the second German edition of this book that has been edited by Dr. James Herrick, Professor of Medicine in Rush Medical College, Chicago.

Senator's monograph is divided into a general portion and a special portion. The former opens with a historical introduction, in which due credit is given to Richard Bright, of Guy's Hospital, who "made the definite statement in a series of papers, the first of which appeared in 1827, that many forms of dropsy owe their origin to a disease of the kidney manifesting itself by the presence of albumin in the urine."

In the special portion of Senator's work attention is directed to malformations and displacements of the kidneys, neuralgia, circulatory disturbances, hypertrophy and atrophy, inflammations, degenerations, neoplasms, renal concretions, entozoa and vegetable parasites, anomalies of the renal vessels, perinephritis and paranephritis. The Editor's annotations are judicious and to the point. We are particularly pleased with his remarks on the surgical treatment of nephritis (page 294) as advocated by Edebohls in his *brochure* on "Surgical Treatment of Bright's Disease" (New York, 1904). As to decapsulation of the kidney in every case of chronic nephritis, Dr. Herrick considers that "the reports of many of the cases are far from complete, some of them leaving grave doubt as to the correctness of the diagnosis of nephritis; the results in some instances are too uncertain and have not lasted long enough to warrant one in saying there has been a cure, nor is it sufficiently emphasised that in the natural course of chronic nephritis marked variations in the symptoms and urinary findings are frequently seen, so that the changes met with after operation are not necessarily the result of the surgical procedure." It is possible that the procedure, advocated by Reginald Harrison and others, of splitting or puncturing the renal capsule for the relief of tension in cases of acute nephritis and congestion, where the condition of the kidney is one of swelling and the capsule is tense, may prove beneficial and restore the function of the kidney where there is anuria. But Dr. Herrick thinks that "even this treatment is decidedly uncertain in its results, for the majority of cases of acute nephritis recover, anyway." The

Editor, alluding in his preface to this question of the surgical treatment of nephritis, observes that perhaps Senator's silence concerning this topic is a more forceful condemnation of the procedure than his own words.

Following the section on Surgical Treatment, Dr. Herrick gives a clear, if brief, account of the theory and value of cryoscopy and of the methylene-blue and phloridzin tests as aids in determining the functional power of the kidney. In relation to this subject also, Dr. Herrick shows a judicious reserve and writes (page 298)—“These varied tests for the renal function are not to be relied upon implicitly, and should be viewed merely as confirmatory of the ordinary and longer-known methods—testing for albumin, casts, urea, nitrogen, total solids, &c. When there is an agreement of all these methods of examination, the old and the new, especial value attaches to the results.”

Senator's great work, with the Editor's notes, occupies rather more than one-half the volume under review. The rest of the book is taken up with Professor M. Litten's articles on Diseases of the Spleen (236 pages) and Hæmorrhagic Diseases (96 pages). The Editor tells us that he consented, somewhat reluctantly, to include these sections in the volume on Kidney Diseases, which otherwise would have been much smaller than the other volumes in the English edition of Nothnagel's *Encyclopædia*. Notwithstanding a change in the views entertained in respect to anæmia, leukæmia, malaria, and so on, since Litten wrote, it seemed wisest and best to let Litten's words stand as he penned them. But these modern views have not been ignored, and interpolations will be found on the relation of the mosquito to the causation of malaria (pages 540 *et seq.*), on splenic anæmia (pages 600 *et seq.*), on congenital icterus with splenomegaly (page 604), on the X-rays in the treatment of leukæmia (page 588), and on chronic cyanosis with polycythæmia and enlarged spleen (page 603).

It must be understood that Litten's second monograph included in this volume deals, not with Blood Diseases in general, but with the Hæmorrhagic or Purpuric Diseases—namely, scurvy, hæmophilia, and *Morbus maculosus Werlhofii* (or, more correctly, *Werlhoffi*). Under the last heading the

names *Purpura simplex*, *Purpura hæmorrhagica*, *Purpura rheumatica*, and *Peliosis rheumatica Schönleinii*, are given apparently as synonyms. That these various forms of purpura are essentially the same is the view put forward by Litten. He says: "Personally, the writer is of the opinion that in all the different forms of purpura we are unable to distinguish any essential characteristic features; the only differences observed are in the intensity of the disease. The differences then are of degree and not of kind" (page 746). Dr. Herrick adopts Osler's classification of the purpuras into the symptomatic and the arthritic.

Taking everything into account, we look upon this volume of Nothnagel's Encyclopædia as one of the best of the series.

The Doctor and the Simpler Life. A Series of Medical Criticisms on the Everyday Habits of Various Classes of the Community. By C. W. SALEEBY, M.D. ("A Physician"). (Reprinted from the *Pall Mall Gazette*, and supplemented and revised.) London: The "Pall Mall" Press, Holborn, W.C. 1905.

THIS very interesting series of well-written articles furnishes ample material for thought to the physician—and to the philosopher, the philanthropist, and the politician. Dr. Saleeby is gifted with the rare power of clearness of exposition, the conspicuous absence of which we have so very frequently to deplore in the medical literature of the twentieth century. He has also taken up the position of the true philanthropist in the search for remediable evil in the pilgrimage of human life, and in the public indication of the means which suggest themselves for its prevention and cure. The series of articles—19 in number—which form the text of the neat little volume now before us is divided into two parts, of which the first includes six—under the heading of "The Poor as seen by the Physician," while the balance is grouped beneath that of "The Well-to-do as seen by the Physician." The respective titles are worth quoting, more especially as it is quite impossible within the limits of an ordinary review to discuss the subjects, or even a portion of them, with any approach to justice. And we incline to the opinion that the delivery of a necessarily

imperfect judgment, based upon an incomplete discussion, is likely to prove a departure in the direction of actual injustice. The headings of the various sections of the first part are :—“The Physique of the Poor ;” “The Great Charities ;” “The Food of the Poor ;” “Alcohol and Poverty ;” “The Children of the Poor ;” “The Future of Poverty.” Those found in the second part indicate corresponding interest and importance, at least to the smaller section of the community whom this series of discussions specially concern :—“The Worship of the Stomach”—an appalling implication in an age of *altruism*, *universal education*, and *universal suffrage* ; “The ‘Nerves’ of the Well-to-do”—a very familiar subject of the present period, even to the non-professional attendant at Society’s afternoon teas ; “The Well-to-do Woman”—did not a great Roman satirist write that there was nothing so bad as a rich woman (?) ; “The Worship of Drugs”—very generally an immediate loss, and subsequent gain, to the medical man, in this era of “*tabloids*” and other therapeutic gems of healing-made-easy, dealt out in small parcels ; “The Well-to-do Patient”—who, we may remark in passing, does not invariably seem the most willing to pay ; “The Food-faddist”—a familiar bore of the consulting-room, who generally manages to make his medical adviser’s work as dearly and painfully earned as does any of his clients ; “The Decadence of Motherhood”—a reliably productive factor in the “physical deterioration” of which we have heard and read so much of late ; “The Modern Holiday”—whose advantages are so often neutralised by abuse ; “Some Superstitions”—of which we feel disposed to believe that a certain proportion will die with the last surviving member of the human race, but not previously ; “On Cloths and Clothing”—another fertile subject, and conspicuous index of some of the most characteristic weaknesses of *homo sapiens* ; “Premature ‘Education’”—a most important topic in the present stage of mental and physical evolution ; “Heat and Health”—a subject which is well and wisely discussed, as we were specially pleased to see, for the benefit of an age which is perhaps overstocked with artificial comforts for the “well-to-do ;” and, finally, “How to use a Doctor”—a subject on which we purposely avoid making any running comment, as we feel sure that every doctor of three months’ standing has

unshakable ideas of his own thereon; so that we will just conclude by recommending each and all of our readers to ascertain those of Dr. Saleeby, which we consider eminently worthy of his (or her) best consideration.

Irish Association for the Prevention of Intemperance. Twenty-sixth Annual Report. For the Year 1904. Dublin Offices: Eustace Buildings, Eustace Street. 1905.

THE main results obtained from the praiseworthy efforts of this very estimable society are here represented in a well-printed octavo pamphlet of 48 pages. They are encouraging. A graduated decrease in the number of recorded cases of drunkenness, with or without the "disorderly conduct" decoration, and other conjoined offences, is pleasingly shown in the table of comparative statistics of the years 1901-2-3-4. The hope of the "Temperance Crusaders" lies, of course, chiefly in the rising generation, on whose behalf they are making most praiseworthy efforts, which are worthy of the cordial sympathy of all good and true men and women. We daily wish them God-speed in their undertaking.

Golden Rules of Nursing. By W. B. DRUMMOND, M.B. Bristol: John Wright & Co. Pp. 97. (n.d.)

THIS may be useful as an *aide memoire*, but to learn the theory of nursing a less concentrated pemmican would be preferable; when information is reduced to "snippets," the tendency is towards memorising rather than understanding. The "Golden Rules" are, however, accurate and well arranged.

A Research upon the Action of Alcohol upon the Circulation.

By HORATIO C. WOOD and DANIEL M. HOYT. National Academy of Sciences, Washington, U.S.A. 1905.

THE authors state that their researches upon dogs show that alcohol does not usually increase the arterial pressure, but arterial pressure is the result of the interplay of two antagonistic forces—the propelling power of the heart and the frontal resistance of the vessels. The propelling power

may be increased and yet no increase in pressure be seen if the resistance is *pari passu* diminished, and that is what the authors believe takes place, as if only one factor was at work the pressure would rise or fall. This is corroborated by the fact that after vasomotor paralysis by section of the cervical cord alcohol causes the pressure to rise.

The authors suggest that some results which have been supposed to be due to a direct action of the drug are secondarily produced by the increase of the activity of the circulation; thus it is probable that increased cerebral excitement and activity are due to the enormously increased flow of blood running riot through the cerebrum.

Ambulance Examination Questions. By D. M. MACDONNELL.
Bristol: John Wright & Co. 1905. Pp. 30.

THIS is a catechism on Warwick and Tunstall's "First Aid" handbook, and will be found useful by the members of ambulance classes who desire to test their own and their fellows preparedness for examination.

Nursing: Hints to Probationers on Practical Work. By
MARY H. ANNESLEY VOYSEY. London: The Scientific
Press, Ltd. Pp. 111 + viii. (n.d.)

THIS is an excellent little book, containing just what a probationer needs, given in a form a probationer can easily understand. The author, with rare self-restraint, has avoided the padding which so often spoils books on nursing, and in simple language has given clear and easily followed descriptions and directions, to which a full index makes reference easy.

There is one paragraph we would venture to criticise; it occurs in the Chapter "Off Duty," where, having described how a nurse who did not care for fashions or clothes much herself, yet studied shop windows so that she might describe the latest creations to an interested patient, the author adds:—"How much more then would the artist or musician delight in an account of some new picture or piece of music!" We would like to hear what artists and musicians have to say before passing this advice on to probationers.

PART III.

SPECIAL REPORTS.

PROGRESS OF NEUROLOGY AND PSYCHIATRY.

By W. R. DAWSON, M.D., F.R.C.P.I.; Medical Superintendent, Farnham House, Finglas, Co. Dublin.

A New Theory of the Afferent Nervous System.—Dr. Henry Head (*Brain*, Summer, 1905) has arrived at some very remarkable conclusions as the result of observations made in conjunction with Drs. Rivers and Sherren, partly on a number of cases of accidental severance of nerves, but chiefly on his own hand and arm after experimental division of the radial and external cutaneous. He finds that after complete destruction of all cutaneous sensory nerves the part still remains sensitive to pressure with a pencil or the head of a pin, and that the sensation can be localised; when the pressure is severe, pain can be felt. This sensibility must therefore be due to afferent fibres from the muscles, tendons and joints, which run with the motor nerves. A similar set of afferent fibres, associated with the impulses of movement and position, is connected with the Pacinian organs in the viscera. When cutaneous sensation began to return, the kind of sensibility first restored was peculiar. The prick of a pin was felt, but the pain was not localised, and radiated widely; and the same was true of differences of temperature above 50° and below freezing point, minor differences not being distinguishable. The temperature sense was found to be restricted to certain defined spots, some of which reacted to heat, others to cold, while the intermediate areas were insensitive to either. These spots were incapable of giving graduated sensations of heat or cold, and several spots feebly stimulated together gave a more intense sensation than one spot more powerfully stimulated. The conclusion is that here we have a special form of sensibility, qualitative but not quantitative, and to this Head gives the name of "protopathic sensibility." From some observations on colotomy cases he is also led to infer that it is this

“protopathic sensibility” with which the viscera are endowed, and that for them its course lies in the sympathetic system.

Much later, sensibility to light touch, and to warmth and coolness, returns, the widespread radiation of sensation ceases, and localisation is gradually restored. In a small area of the skin of the experimenter's affected arm this particular variety of sensation was alone retained all through, and was carefully observed. The area was found to be totally insensitive to temperatures above 50° C. and below freezing point, but differences of intermediate temperature were appreciated. This variety of sensibility is called by the author “epicritic sensibility,” and is evidently subserved by a different set of fibres from those conducting protopathic sensibility, though “every peripheral nerve contains in varying proportion the fibres subserving” both forms. It is this epicritic sensibility “by which we gain the power of cutaneous localisation, of the discrimination of two points, and of the finer grades of temperature, called warm and cool.”

In the spinal cord, however, these three sets of fibres no longer remain distinct, but are grouped and co-ordinated so that the impulses now conducted are those of pain, heat, cold and touch.

This well worked-out theory explains apparent anomalies in the phenomena following the division of nerves, and for all reasons deserves the most careful attention.

Autogenetic Regeneration of Nerve-Fibres.—Bethe found that after removal of the central portion of the divided sciatic nerve of a young dog, together with the spinal ganglia belonging to it, regeneration of the medullated fibres in the peripheral portion took place to such an extent that stimulation of them caused muscular movement. More recently Raimann (*Neurolog. Centralb.*, 1905, Nr. 21, s. 1015) removed from a newly-born puppy the portion of the lower end of the cord giving origin to the sciatic, with the corresponding spinal ganglia, and after some weeks observed numbers of regenerated medullated fibres in both sciatics. Lugaro (*Neurolog. Centralb.*, 1905, Nr. 24, s. 1143), criticising these results, objects to them on the grounds that the new fibres may have been derived from the branches of the crural and obturator nerves supplying neighbouring regions, since even in Raimann's

experiment the segments of the cord giving origin to these nerves were not removed. He himself removed the lumbo-sacral nerves and ganglia from young dogs and cats at their exit from the dura, and after even four months could detect no regenerated medullated fibres in the sciatic nerve. He also failed to find a single myelinated fibre in the nerves of the posterior extremity of two young dogs killed three months after ablation of the lumbo-sacral cord and spinal ganglia. Other results which he has obtained are also opposed to the theory of autogenetic regeneration.

Cerebral Arterio-Sclerosis and Mental Diseases.—Dr. A. M. Barrett (*American Journal of Insanity*, LXII., 1, p. 37) maintains that there is a psychosis due to arterio-sclerosis, distinguishable from general paralysis on the one hand, and from senile dementia on the other, though having much in common with both diseases. The characteristic feature, anatomically, of the process is its focal occurrence, and it is to be distinguished from the condition in general paralysis by its less diffuse character and by the absence of infiltration of the vessel-walls with lymphoid and plasma cells. In senile dementia, again, the disappearance of the nerve-cells is more diffuse and general, not patchy as in arterio-sclerosis, which may, however, be present to some extent in either of the other conditions.

The disease occurs chiefly in middle or more advanced life. Paretic seizures and congestive attacks are common before the onset of mental symptoms, and there are frequently present other indications of arterio-sclerosis, including nephritis. The mental symptoms consist of a progressive dementia, frequently beginning with impairment of memory, which gradually became more marked. Dulness and lack of productivity or power to do intellectual work seem to be invariable, and there is great changeability of the emotional tone, which is never persistently depressed, though often apathetic. Hallucinations and delusions may occur as episodes, but are not a prominent feature; the delusions are mainly of suspicion, rarely expansive. Focal symptoms are prominent (aphasia or speech-difficulty, apoplectiform or epileptiform attacks, pupillary abnormalities). The state of the reflexes is variable.

Clinically the psychosis is distinguished from general paralysis by the occurrence of dizziness or seizures *before* mental disturbance has appeared, and the graver nature of the results of such attacks in its course; by the absence or inconspicuousness of delusions, especially of the expansive kind, and also of reflex anomalies. Sometimes, however, diagnosis is impossible.

In cases in which there is coarse destruction of brain-tissue, corresponding focal symptoms will naturally be found.

The diagnosis from true senile dementia is still more difficult, but the essential difference is that in the latter the nervous elements and not the vessels are first affected. Senile arterio-sclerotic mental disease is practically the same in its clinical manifestations as true senile dementia, but, in addition, there are various focal vascular symptoms, such as "strokes" and limited paralyses, speech defects and aphasia.

The Cerebro-Spinal Fluid in Nervous and Mental Disease.—An interesting study from a diagnostic point of view, by C. B. Farrar, appears in the *American Journal of Insanity* (LXII., 1, p. 85). Chemically, the *albumin* is increased in various forms of meningo-encephalitis and in tabes and general paralysis, but above all in the last, in which this may be an early sign. Increase of the normal *sugar* has not been found apart from diabetes, but absence of it was noticed by one author in dementia præcox. *Cholin* is markedly increased in general paralysis, but also in tabes, epilepsy, multiple sclerosis, cerebral tumour, and various forms of encephalitis and meningo-encephalitis. Important results may also be obtained by studying the cytology of the fluid. Normally it contains never more than three lymphocytes, and often none, in an oil-immersion field, but in pathological conditions from four to twenty or more may be observed. A lymphocytosis is the rule in general paralysis and in tabes, indicating a subacute or chronic morbid process, as also in tubercular and syphilitic meningitis and meningo-myelitis. On the other hand, in acute congestive or inflammatory conditions of the meninges, in epidemic cerebro-spinal meningitis, and in cerebral abscess, the condition is a leucocytosis. In acute cerebro-spinal meningitis a leucocytosis was found to be succeeded by a lymphocytosis as the disease progressed

towards recovery. The presence of an increased number of cells serves to exclude the functional psychoses in making a diagnosis. In addition to the above-mentioned cells, granule-cells have been observed in cases of focal hæmorrhage and softening, and in one case of necrosis even a nerve-cell was found.

For counting cells, newly-drawn uncentrifugalised fluid should be used. Three to five cc. is sufficient, and should be drawn off (on no account aspirated) from the spinal canal. The patient should be put to bed after the operation, as severe headache, pain in the back and in the neck, nausea, vomiting, and mental and bodily lassitude are otherwise likely to supervene. The operation is contraindicated in cases of brain-tumour, particularly of the cerebellum, and of extreme arterio-sclerosis, as death has resulted in such.

Diphtheroid Organisms in General Paralysis.—Dr. Ford Robertson having promulgated the hypothesis that, a diphtheroid organism being almost constantly found in general paralytics, it is this bacillus or its toxin, acting on an organism the defensive powers of which are reduced by syphilis or possibly other causes, which gives the paralytic aspect to the disease, his theory has been investigated by Drs. Eyre and Flashman (*B. M. J.*, 1905, Vol. II., p. 1104). They examined 138 living cases, as well as material from 33 autopsies, at Colney Hatch and Claybury Asylums, and have arrived at the following conclusions :—

1. The incidence of all diphtheroid organisms in the throats of the insane (17.3 per cent.) is no greater than that noted in the sane (18.5 per cent.).

2. The incidence of true diphtheria bacilli in the throats of the insane (5.07 per cent.) is still less, as against 6.9 per cent. in the healthy sane. (Many of the diphtheroid organisms were saprophytes belonging to the diphtheria group.)

3. There is no evidence that *B. diphtheriæ* is commoner in the throats of general paralytics (5 per cent.) than in cases of other forms of insanity (5.1 per cent.).

4. *B. diphtheriæ* was not isolated *post mortem* from any case of general paralysis, but the number of cases so examined is too small to warrant conclusions.

5. The majority of the strains of *B. diphtheriæ* isolated

from the insane are of low virulence and slight toxicity, and so compare with those found in the throats of the healthy sane.

They therefore find themselves unable to trace any causal connection between *B. diphtheriæ* and general paralysis of the insane.

Tent Treatment of the Insane.—An extension of the tent treatment of certain classes of the insane is reported from the Manhattan State Hospital (Drs. C. F. Haviland and C. L. Carlisle, *American Journal of Insanity*, LXII., 1, p. 95). Initiated primarily for the tuberculous insane, with whom it continues to give good results, it was extended three years ago to the demented and uncleanly class of patients, on whom a remarkable effect is reported in re-awakening of the mental processes. Feeble senile cases have also been found to do well, and, in fact, the authors state that they have "found but few classes of insane patients who are not capable of improvement when living an outdoor life, even if it be feasible to provide camps for certain classes but for a comparatively brief period during the favourable months of the year." The latest development has been the use of tent treatment for patients whose convalescence is unduly prolonged, and subject to periods of partial retrogression and relapses. These patients were all occupied in workshops during the day, but otherwise lived entirely in large tents made of duck, with wooden floors raised about a foot above the ground. In fine, warm weather the walls of the tents were raised both day and night. Seven per cent. of the patients so treated were discharged, and 16 per cent. showed a marked improvement, so as to warrant the expectation of their speedy release. No attempt was made to escape, and no patient was either "untidy, suicidal, obscene, noisy, maniacal, hysterical, homicidal, filthy, or destructive." The average gain in weight of the patients from June 1st to December 1st was 5.128 lbs., and only three patients were on continued medication during the summer.

REPORT ON RHINOLOGY, OTOTOLOGY, AND LARYNGOLOGY.

By S. HORACE LAW, M.D., Univ. Dubl., F.R.C.S.I.; Throat Surgeon to the Adelaide Hospital, and Surgeon to the Dublin Throat and Ear Hospital.

THE intention of these short notes is to bring before my readers a few ideas on the various subjects communicated to the American Otological Society, and to the American Laryngological Association at its twenty-seventh annual meeting. Only those of some general interest will be mentioned.

TRANSACTIONS OF THE AMERICAN OTOTOLOGICAL SOCIETY.

(VOL. IX., PART I.)

DR. GEORGE SHAMBAUGH undertook the examination of the communications between the blood-vessels in the membranous labyrinth and the endosteum, and those in the bony capsule of the labyrinth.

He mentioned that there were two schools of thought—one, that of Hyrtl, who expressed the opinion that the blood-vessels of the labyrinth form a closed system which does not communicate with the vessels of the surrounding parts. Politzer, on the other hand, believed he could demonstrate communications between the blood-vessels of the mucosa in the tympanum and the vessels in the membranous labyrinth.

The author's results are that communications are found as follows:—"About the basal coil of the cochlea at six distinct places, in the vestibule at four places, and in the semi-circular canals at one point." (This naturally has a most important bearing on the question of septic infection spreading from the inner ear to the labyrinth, and so to the meninges.)

DR. BRYANT, in a short communication, endeavoured to show the relationship between some cases of deaf-mutism and tomain poisoning.

The question brought forth a good deal of discussion, and, as he had only one case of a non-conclusive character, the majority of the speakers did not consider that there was much foundation for his theory. He endeavoured to show

that the same symptoms were found in the eye, due to botulismus, but this was criticised, as the symptoms in the eye are of an evanescent character. He tried to show that possibly some cases of Ménière's disease might be, in reality, neuritis of the auditory nerve, and of toxic origin.

DR. HIRAM WOODS mentioned some points with regard to chronic suppurative otitis media bearing upon life insurance. As is known, most insurance companies refuse risks upon persons with chronic ear discharge, but he thought that it would be quite possible to accept these cases if there did not seem to be any reason to apprehend danger, and he put it in three ways :—

First, if there were intermissions in the discharge.

Secondly, such conditions as ensure good drainage.

Thirdly, considerable period of duration with absence of all evidence of caries.

DR. JAMES M'KERNON brought forward a most interesting paper on primary jugular bulb thrombosis in children, as a complication of acute purulent otitis media (with a report of cases).

In all he brought forward six cases, and relied almost entirely for his diagnosis on the fact that there was—firstly, acute ear trouble ; secondly, that without apparent cause the range of temperature was very great ; and his results seem to bear out this, as in all cases he found clots in the jugular bulb.

Shortly, his method of treatment was to expose the lateral sinus as far down as possible ; to open it and remove growths, promote bleeding, and then to plug ; and he notes in that connection the fact that we get a so-called *return* flow of blood from the bulb region is not evidence, however, that the vein is free from obstruction, for the blood may come from the petrosal sinus and not from the main trunk at all.

The next paper, by DR. EUGENE A. CROCHET, was about seven cases of thrombosis of the lateral sinus, ligation of the internal jugular—recovery in all.

The main interest centred round the fact that in all cases he ligatured the internal jugular, and all recovered. He did not think it necessary to remove the whole of the thrombosed portion of the vein, which makes the procedure much more

simple, but was content to tie it and bring the ligatured portion out into the wound, and he regarded the success that he had as due to the fact that the jugular was ligatured early. He thought the fact of optic neuritis being present was of great importance in the diagnosis.

DR. HERMAN KNAPP brought forward a case of apoplectic form of Ménière's disease after miscarriage.

"She had good hearing until May two years ago, when she had a miscarriage; the uterus was curetted. Three days later she was perfectly well, and got up; then she was taken with severe pain in her head; convulsions lasting fifteen hours; awoke totally deaf. Now distressing tinnitus and vertigo. Mtt. negative. On closing eyes, she sways and falls back. Pain in right side of head, parietal region. On turning, she falls to the right side. Had six children; had the miscarriage not long before the expected birth of the seventh child. Had a flushed face, said to be her natural complexion. After attacks she could not stand; swayed, and had to be sustained. Hearing naught to all tests."

His opinion was that the hearing would never return, and that no treatment could be of any benefit, especially as no cases of restoration of hearing are on record if total deafness has lasted longer than a few weeks.

TRANSACTIONS OF THE 27TH ANNUAL MEETING OF THE
AMERICAN LARYNGOLOGICAL ASSOCIATION.

DR. THOMAS H. HALSTED contributed a paper on angio-neurotic oedema involving the upper respiratory tract. "Angio-neurotic oedema," he says, "as defined by Collins, is a vaso-motor neurosis or an angio-neurosis, characterised by the appearance of circumscribed swellings on various portions of the surface of the body and the mucous membranes, by preference the face, throat, and extremities, without apparent cause or premonition, and non-inflammatory in character."

This disease has been much neglected in text-books on laryngology. When it occurs in the upper respiratory tract it is very suggestive of some other complaints—for instance, quinsy, when affecting the fauces; and so on throughout the region.

Dr. Halsted depends for his treatment principally on

adrenalin and cocaïn, and scarification if necessary ; whilst he has tracheotomy to fall back upon if the dyspnœa increases.

The main interest of the case is that it should be borne in mind as a possibility when called to see a sudden acute affection of the throat.

DR. GEORGE L. RICHARDS relates his personal experiences with empyemata of the frontal sinus, and his ideas may be shortly stated as follows :—

“ The chronic cases of empyemata may be divided into two classes :—First, those in which the reasonable persistence of intra-nasal therapeutic measures has brought about success ; and those in which, after the persistence for a reasonable time of such intra-nasal therapeutic measures as we have at our command, are still uncured or not sufficiently improved, and in which an external operation seems imperatively demanded.”

However, he winds up his paper by the following statement :—“ It is fair also in considering any report of cases to assume that in many patients it may be impossible to get a perfect cure, as the anatomical conditions and pathological changes militate against this, and do not allow the operator, with safety to his patient, to remove a sufficient amount of tissue ; cases in which no form of operation will produce an absolute cure. I think the operator should feel fairly well satisfied with his results when he has gotten his patient free from recurrence ; free from annoying nasal discharge ; free from pain ; even though there may still continue to be a moderate amount of ethmoidal muco-pus, which, in the majority of instances, will not be noticed by the patient as anything more than ordinary nasal discharge.” And this latter appears to me the general opinion of surgeons on this side of the water. Though the larger operation may be brilliant, it is seldom possible to avoid a serious scar in the frontal region, and this fact alone makes surgeons loath to undertake it.

DR. J. PAYSON CLARK contributed a paper on papilloma of the larynx in children. He says : “ The etiology of this variety of benign tumour, especially in children, is still unknown. If papilloma of the larynx is the result of a microbe infection, the specific bacterium is yet to be discovered.

'The respiratory tract being derived from the epiblast, its papillomata are classed with skin warts.' . . . That the laryngeal variety has the same 'mild contagiousness' which has been more or less generally accepted of the skin wart of childhood is strongly supported by the frequent appearance of papilloma in a new part of the larynx after operative interference. Indeed, this fact furnishes a strong argument for the expectant treatment to be spoken of later. Diphtheria, measles and other affections which sometimes appear in the histories of these cases to be associated with their origin, must be looked upon as merely secondary or exciting causes, acting principally, if not solely, by increasing the circulation in the affected parts, but possibly also by lowering the resistance of the organism to infection, if it is a germ disease."

He brings forward several statistics, and, roughly, they may be stated as follow:—That about *one* in every *eight hundred* cases of children seen at a throat hospital have papilloma. His fundamental proposition is that these growths will not yield to any form of treatment which has been attempted, however radical, until the period of active growth has passed, and he brings forward a number of cases, both of his own and others, to prove this contention; and, further, that cases in later years, when operated on, heal up rapidly, and do not recur. His advice is to do a tracheotomy, and to wait for operative interference until the period of active growth has passed.

He thinks that children can wear a tracheotomy tube with comfort, and without interference with their health, for years.

DR. ALEXANDER W. M'COY ("A Further Study of Hay-fever, Clinically") spoke of his employment of pollantin (Professor Dunbar), and showed that the serum, to be of use, should be made from the particular form of grass which was most prevalent in the district where the cases were to be treated, and this was found out by the fact that the second lot of serum sent to him was made from some grasses which were not so common in America as in Europe. He considers that if he gets the serum suitable to the district it is of very great utility.

DR. GEORGE BACON WOOD undertook the examination of the lymphatic drainage of the faucial tonsils, and his results

are summed up as follow :—"The lymph vessels pass from the external portion of the tonsil through the peritonsillar connective tissue, the pharyngeal aponeurosis and the superior constrictor of the pharynx, and as one or two or more fine small vessels run obliquely in a downward, posterior and outward course, passing below the facial artery. Bending more posteriorly, the lymph vessels next run between the internal jugular vein and the stylo-hyoid muscle, reaching finally an enlarged lymph gland placed just beneath the anterior border of the sterno-cleido-mastoid muscle, where it is crossed by the posterior belly of the digastric muscle.

"The efferent vessels from this gland are generally two or three in number, and pass into the neighbouring glands of the internal jugular group. Further anastomoses, which connect the lower glands of the internal jugular group with those receiving the tonsillar drainage, form a complete lymph channel through which the tonsillar lymph finally empties into the jugular lymph trunk."

INTERNATIONAL EXHIBITION, ANTWERP, 1906.

It is announced that an International Exhibition will be held at Antwerp during the months of April and May of this year. Medicine and Hygiene will play a very important part in this Exhibition, which is under Government patronage and the very distinguished presidency of H.R.H. the Countess of Flanders. All inquiries relating to the Exhibition should be addressed to the Secretary's Office, 26, rue d'Arenberg, Antwerp.

SOCIÉTÉ MÉDICALE DU LITTORAL MÉDITERRANÉEN.

At its last meeting this society proceeded to the election of its officers for the year 1906. The following were elected :—President—Dr. Guiter (Cannes); Vice-Presidents—Dr. Vivants (Monte-Carlo), Dr. Moriez (Nice), Dr. Barety (Nice), Dr. Sardou (Nice); Secretary-General—Dr. Hérard de Bessé (Beaulieu); Treasurer—Dr. Bonnal (Nice); Keeper of the Archives—Dr. Ardoin (Nice); Secretaries—Dr. Mignon (Nice); Dr. Gilli (Nice), Dr. Bienfait (Cannes).

PART IV.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR THORNLEY STOKER, M.D., F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF MEDICINE.

President—SIR WILLIAM SMYLY, P.R.C.P.I.
Sectional Secretary—F. C. PURSER, M.D., F.R.C.P.I.

Friday, December 8, 1905.

JAMES LITTLE, M.D., in the Chair.

A Case of Acute Graves's Disease ending fatally.

DR. J. A. MATSON made a communication on the above subject, [The case is reported in full at page 20.]

DR. FINNY, in discussing the case, said he found that in ordinary cases of Graves's disease absolute rest, removal of all exciting causes, and electricity gave the best results.

DR. MOORHEAD said he was at present observing a similar case, which began three weeks ago with typical diphtheria. The thyroid was not then enlarged, but since then had been increasing in size noticeably from day to day. He stated that he found hypodermics of morphin the most satisfactory treatment.

Carcinoma Cutis.

DR. C. M. O'BRIEN read a paper on the above, with notes of two cases—(a) Cancer *en cuirasse*, in a woman, aged thirty-nine. When first seen by him the growth had involved two square inches of the right breast, including the nipple and areola. A month later the skin of the upper part of the left breast became involved;

the growth spread so rapidly that the entire chest became encased within ten weeks of her admission to the Skin Hospital. She died within six months from the onset, notwithstanding that 10 minutes exposures to X-rays were given daily for 13 weeks. (b) Paget's disease of nipple, in a man, aged fifty-three. The right nipple and areola were infiltrated, the former being slightly retracted; the limitation of the patch, and its red, raw, granulating appearance, were very characteristic; for a period of nearly three years it had failed to yield to almost every well-known remedy for eczema.

DR. W. G. SMITH referred to the rarity of Paget's disease in a man. He discussed the diagnosis, laying stress on the extremely sharp limitation of the disease and the leathery induration of the skin.

DR. WINTER spoke of a case where a patient had improved on treatment with X-rays, but going away before a cure had been effected, returned, and was treated with radium; though again going away before the completion of treatment the case had gone on improving, and no return had occurred since—an interval of twelve months.

Unusual Case of Sudden Hemiplegia in a Child.

DR. TRAVERS SMITH recorded the case of a little girl, aged seven, who was admitted under his care to the Whitworth Hospital, her mother having noticed the same morning that the child was unable to dress herself, owing to loss of power in her right arm and leg. The day previous to admission the child had been apparently quite healthy; in fact, had never been ill except once from acute bronchitis. On admission the child was found bright and intelligent; temperature, 100.8° F.; pulse, 110; respiration, 26. The right arm and leg showed complete paralysis, were absolutely flaccid, and exhibited no tendon or cutaneous reflex action. Babinski's sign was absent. The right side of the tongue and lower half of face on the same side were also paralysed. No aphasia was present. Sensation was normal. The child remained in exactly the same condition for a week, then became dull and stupid; the temperature went a few degrees higher, whilst the pulse became slower. By the end of the second week she had become comatose, her pupils were dilated and irresponsive to light, she was unable to swallow, her sphincters relaxed, the temperature fell to subnormal, the pulse became very slow, the respiration irregular. These symptoms being recognised as those

of intra-cerebral distension, lumbar puncture was performed. (Dr. Travers Smith expressed the view that in no case should cerebral ventricular distension be allowed to constitute the immediate cause of death, any more than distended pleural cavities should be allowed to do so without being relieved. There was always the hope in obscure cerebral cases that the primary cause of the distension might be something transient, and not necessarily fatal—*e.g.*, cerebro-spinal meningitis.) The cerebro-spinal fluid in this case flowed freely, the flow being increased by pressure on the head. The fluid was perfectly clear, no organisms could be cultivated from it, and it was too poor in cells of any description to draw diagnostic deductions from its cytology. Temporary improvement followed the lumbar puncture, but coma deepened again; internal strabismus of the right eye, and intermittent spasm of the eyelid developed. The child died two days later, on the 18th day of her illness. *Post mortem*.—The dura over left Rolandic area was found thickened and adherent to the cortex owing to old tubercular inflammation. About the middle of this adhesion a small cortico-meningeal abscess, the size of a pea, was found. The base of the brain showed miliary tubercles along the vessels, but only moderate inflammation. The cerebral ventricles were moderately distended. The cord showed no signs of meningitis, and microscopic sections were normal. The brain and cord were otherwise healthy. Dr. Travers Smith considered the points of chief interest in the case were—(a) the sudden onset of the hemiplegia, which he attributed to sudden vascular congestion of the old tubercular focus; (b) the total loss of reflexes and flaccidity of the paralysed limbs, even when there were as yet no signs of the terminal tubercular meningitis; (c) that such localised tubercular foci may explain the obscure occurrence of hemiplegia during childhood in other cases; (d) the involvement of the face and tongue is rare in the hemiplegias of childhood. Dr. Earl kindly examined the spinal fluid and cut sections of the spinal cord.

DRS. KIRKPATRICK, LANGFORD SYMES, and BEWLEY, in discussing the case, all spoke of the peculiar condition of the limbs. Dr. Bewley also asked whether it were possible that an embolus had lodged in the middle cerebral artery.

DR. TRAVERS SMITH said there was no embolus, and referred to the absence of reflexes commonly met with in general meningitis as an explanation of the condition of the limbs.

Stokes-Adams Syndrome.

DR. PARSONS read a paper on the above subject. Having referred to the original cases recorded by Stokes and Adams, and to Osler's and Hay's more recent observations on this symptom group, he read the notes of a case which was recently under his care at the Royal City of Dublin Hospital. The patient was sixty-eight years of age, and a gardener by occupation. He enjoyed excellent health till last May, when he suddenly became unconscious. From May to October he had from 7 to 10 attacks of unconsciousness, lasting from a few minutes to four hours, and not accompanied by any convulsive movement, or followed by any paralysis. The patient's pulse generally ranged from 30 to 40 per minute, and there was advanced arterio-sclerosis. Tracings from the heart and radial artery were exhibited, and it was suggested that a possible explanation of the bradycardia was a partial heart block owing to degenerative changes in the tissues in the neighbourhood of the auriculo-ventricular groove.

DR. FINNY gave an account of a case very like this, occurring in a woman.

DRS. TRAVERS SMITH, DRURY and WATSON also spoke.

Tumour of the Brain.

DR. KENNEDY showed a case of the above.

SECTION OF OBSTETRICS.

President—R. D. PUREFOY, F.R.C.S.I.

Sectional Secretary—HENRY JELLETT, M.D., F.R.C.P.I.

Friday, December 15, 1905.

The PRESIDENT in the Chair.

Wertheim's Operation for Removal of Uterus.

DR. R. C. B. MAUNSELL showed a uterus removed by Wertheim's method for carcinoma of cervix.

DR. JELLETT asked if he had found the separation of the ureters, as Wertheim described it, easy? Wertheim said that if the ureter was isolated it sloughed; but when were you not going to isolate it if it ran through or on top of a carcinomatous mass? If this is so, it would seem to be a necessary part of the operation to remove this isolated portion and re-insert the ureter into the bladder. He did not see any difficulty in the rest of the operation.

The PRESIDENT said that in the removal of a cancerous uterus one of the chief things was the safety of the ureters, and this was difficult to provide for. It was an interesting point that so many glands were examined and found to be free from cancer. His own feeling was that the uterus should be removed in every case in which there appeared to be even a slight chance of the patient getting over the operation, and they should try to relieve suffering.

DR. MAUNSELL, in replying, said that he too thought that the operation should be done if possible, as he believed the suffering was less when a patient died from a secondary growth, as in the liver, than from the primary one. The ureter had to be separated if you were going to extirpate the parametrium, and he would not have the least hesitation in doing it, as he thought there was little danger of sloughing, so long as one did not pinch the ureter in any way. He had found it pretty hard to carry out Wertheim's procedure—namely, to lay the finger on the ureter and pass the finger between the ureter and the uterine vessels. There was nothing very difficult in the operation, but it was rather lengthy.

Retro-peritoneal Sarcoma.

DR. HASTINGS TWEEDY showed a retro-peritoneal sarcoma.

DR. ROWLETTE described the pathology of the tumour.

The PRESIDENT described a somewhat similar case in a girl aged seventeen. There had been steadily-increasing distension of the abdomen for two years. Urine loaded with albumen. Operation revealed a tumour weighing 17 or 18 lbs., in the retro-peritoneal tissue in the region of the left kidney, which was free.

DR. GOULDING asked if there was a mesentery in connection with the tumour, as it was hard to conceive that the vessels underneath would not otherwise be pressed on.

DR. TWEEDY, in replying, said that the tumour was absolutely fixed to the spine, and he had been surprised that there was no evidence of pressure on the vessels. This class of tumour could not be diagnosed before the abdomen was opened, and once this was done the surgeon should always complete his operation.

Some Points of Interest in a Series of Two Hundred and Eleven Major Operations.

DR. HASTINGS TWEEDY read a paper dealing with some points of interest in a series of two hundred and eleven major operations performed by him in the Rotunda Hospital. These comprise forty-four ovariectomies, nine panhysterectomies, fifteen sub-total hysterectomies, fourteen pyosalpingies, thirty-two ventrofixations, two anterior colpotomies, eleven salpingotomies, fifteen tubal pregnancies, three ovarian resections, nine ventral hernias, seven

radical operations for procidentia, one tubercular peritonitis, two vaginal hysterectomies for painfully retroverted uteri, two retro-peritoneal sarcomata, four Cæsarean sections, eighteen vaginal fixations, seven abdominal myomectomies, ten vaginal myomectomies, one enterostomy, and five vaginal hysterectomies for cancer. There were eight deaths in this series—two under anæsthesia, in profoundly septic patients, two in abdominal, and one in vaginal, hysterectomy for cancer, one vaginal myomectomy, one sub-total hysterectomy, and one abdominal removal of pus tubes. The skin wound showed some suppuration in five cases, *Staphylococcus albus* in two, *Bacillus coli* in one, and a diplococcus in a fourth, whilst the germ was not looked for in the fifth. Convalescence was delayed in none of these cases. Tubal disease, to a greater or lesser extent, was found in nineteen of the thirty-two patients subjected to ventrofixation; nearly all these were sterile, and an effort was made in every instance to remove the pathological state by breaking down adhesions, resecting ovaries, and opening the lumen of the tube. He believed that neither Mackenrodt nor Wertheim had succeeded in establishing his operation for cancer on a permanent basis. Dr. Tweedy dealt with his method of closing the abdomen in layers, and by means of a leaden plate, and pointed out that in a recent Cæsarean section, undertaken by him for the second time, no trace of silk was to be found in either the uterine or abdominal walls, nor had any adhesions formed in the neighbourhood of the scars. He described in detail the operative technique in force in the Rotunda Hospital, and the simple and inexpensive design of the theatre. None of his failures were attributed to architectural deficiencies in his operating room, which he believed to be adequate for the requirements of aseptic surgery. In its simplicity it furnishes a crushing argument against the lavish expenditure so fashionable in the present day; an expenditure which has converted the modest workshop of the surgeon into apartments which might well serve as a dazzling advertisement for a quack electrical specialist.

DR. JELLETT congratulated Dr. Tweedy, and said he agreed with him in his views on theatre expenditure. He also approved of having the windows open during operations. He thought that the sterilising apparatus should be removed to some distance from the theatre, as the air could, at present, be contaminated by it. He was inclined to think that face bags were not really necessary if the operator took proper care of his teeth. Discussing the technique of operating in cases of sterility, especially when caused by closure of ostia of tubes, he asked Dr. Tweedy if he had any reason to think that in a case where the tubal ostium had been glued down to the intestines there was any chance of making it patent again. He himself thought the chance small, and he thought

the time might be better employed in removing the fimbriated extremities of the tubes where adhesions were most likely to form. He was much surprised to hear that Dr. Tweedy washed out the abdomen in every case, and asked what his views were on the subject of drainage.

DR. KIDD asked what method of suturing was used in the cases of ventral hernia. He himself had used the three layer principle with good results. In the case of sloughing myoma, which was removed by morcelllement, and which ended fatally, would it not have been better to treat by removal of the entire organ? He thought that many cases of sterility were due to the condition of the male. He approved of wearing a mask, as a certain amount of sputum was kept out of the field of operation by it.

DR. HORNE agreed that the enormous expenditure incurred in making theatres was to be deprecated. He appreciated the strict asepsis of Dr. Tweedy, and suggested that the nurses also should wear masks. The fact of so many stitch abscesses having occurred showed that no matter what care was taken accidents would happen. He believed that cases of cancer frequently came for treatment when too late, owing to the fact that pain was a late symptom in the disease.

The PRESIDENT said he had not made the use of rubber gloves a general practice. Many operators stated that their successes were not materially increased by their use, and the difficulty of manipulation was certainly increased. He asked what Dr. Tweedy considered the indications for operation in cases of recurring displacements. Many of these cases were attended with no symptoms. He utterly disbelieved in vaginal fixation, and thought that after Alexander's operation the ligaments frequently stretched again. He thought there was likely to be trouble after these fixation operations if the woman became pregnant, and supposing the ligaments were strong enough to hold.

DR. HASTINGS TWEEDY, in reply, said that he had enumerated all his bad cases. Those that remained recovered without causing anxiety. They suffered from neither excessive thirst, nor vomiting, nor flatulent distension, nor obstinate constipation. This he attributed in some part to filling the abdomen with saline. The patients would probably have recovered without the saline infusion, but he felt convinced that their convalescence would have been less uneventful. His series includes 100 consecutive abdominal sections without a death, but this is not a satisfactory record, so long as the majority of cancer cases seen are not submitted to operation. The submucous myoma removed by morcellation protruded through the vulva as a sloughing mass, and it was quite out of the question to suggest its removal by abdominal section.

SIR WALTER RALEIGH'S "ROYAL CORDIAL."

With some Side-lights on the Clinical Medicine and Therapeutics (and, incidentally, on the Political and Social Morality) of his Generation. By JOHN KNOTT, M.A., M.D., Ch.B., and D.P.H. (Univ. Dub.); M.R.C.P.I.; M.R.I.A.; &c.

(Continued from page 70.)

RALEIGH'S *History of the World* was specially composed for the instruction of his devoted admirer, Prince Henry, "England's darling," who was his constant visitor in the Tower. The splendid folio now before me, printed in 1614, was intended as a first instalment, but the death of his royal pupil removed all incentive to the prosecution of the great work. After what we have already learned of the morals of James's Court, it will hardly cause surprise to my readers to find that the popular prince's death was accompanied by suspicions of poisoning; and that backstairs gossip inspired the report that the monarch did not feel bowed down in spirit by the death of his heir, as he had been noticing his popularity with anxious jealousy. As very few "reports of cases" (with appended *post-mortem* observations)—especially of royal personages—have descended to us from so early a date as 1612, I will lay before the reader Bishop Goodman's account of that of the heir to the English crown, who was looked upon by the English people, in his buoyant days, as "the most exquisite hopefull prince in Christendom."

"In the nineteenth yeare of his age appeared the first symptome of change, from a full round face and pleasant disposition, to be paler and sharpe, more sad and retired; often complaining of a giddy heavinesse in his for-head, which was somewhat eased by bleeding at the nose; and that suddenly stopping, was the first of his distemper, and brought him to extraordinary qualms, which his physicians recovered with strong waters.

"About this time severall ambassadors extraordinary being dispatched home, he retired to his house at Richmond, pleasantly seated by the Thames river, which invited him to swim in the evenings after a full supper, the first immediate pernicious cause of stopping that gentle flux of blood, which thereby putrifying, might ingender that fatall feaver that accompanied him to his grave. His active body used violent exercises; for at this time

being to meet the King at Bever, in Nottinghamshire, he rode it in two dayes, neer a hundred miles, in the extremity of heat in summer; for he set out early, and came to Sir Oliver Cromwells,* neer Huntingden, by ten a clock before noon, neer 60 miles, and the next day betimes to Bever, 40 miles.

"There and at other places, all that progress, he accustomed to feasting, hunting, and other sports of balloon and tennis, with too much violence.

"And now returned to Richmond, in the fall of the leaf, he complained afresh of his pain in the head, with increase of a meager complexion, inclining to feverish; and then for the rareness thereof called the new disease.

"Which increasing, the 10th of October he took his chamber, and began council with his physician, Doctor Hammond, an honest and worthily learned man; three days after he fell into a looseness (by cold) fifteen times a day.

"Then removes to London, to St. James's, contrary to all advise; and (with a spirit above his indisposition) gives leave to his physician to go to his own home.

"And so allows himself too much liberty, in accompanying the Palsgrave, and Count Henry of Nassaw (who was come hither upon fame to see him), in a great match at tennis in his shirt, that winter season, his looks then presaging sickness. And on Sunday the 25th of October, he heard a sermon, the text in Job: 'Man that is born of a woman, is of short continuance, and is full of trouble.' After that, he presently went to Whitehall, and heard another sermon before the King, and after dinner being ill, craves leave to retire to his own court, where instantly he fell into sudden sickness, faintings, and after that a shaking, with great heat and head-ache, that left him not whilst he had life.

"Instantly he takes his bed, continuing all that night in great drought and little rest; the next day head-ache increasing, his body costive, pulse high, his water thyn and whittish.

"Doctor Mayern prescribes him a glisten; after which he rose, played at cards that and the next day, but looked pale, spake hollow, dead sunk eyes, with great drought.

"And therefore Mr. Nasmyth should have let him blood by

* The famous—Hibernicè, bloody and ruthless—Protector was the nephew, as well as namesake, of the above-mentioned host of Prince Henry; their political principles, however, never converged, so that although the uncle lived to see his nephew attain the zenith of his power, he never allowed himself to profit by the occasion.

Mayern's counsell; but the other physicians disagreeing, it was deferred; yet he rose all this day, had his fit first cold, then a dry great heat.

"On his fourth day comes Dr. Butler (that famous man of Cambridge), who approved what had bin ministered, gave hopes of recovery, and allowed of what should be given him.

"Mayern, Hammond and Butler desired the assistance of more doctors; but the prince would not, to avoid confusion in counsell. His head-ache, drought, and other accidents increased.

"This evening there appeared, two hours after sun set, a lunar rainbow, directly cross over the house, very ominous.

"The sixth and seventh increasing his disease.

"The eighth his physicians bleed the median of his right arm, eight ounces, thin and putride; after which he found ease with great hopes; and was visited by king, queen, duke, palsgrave and sister.

"The ninth worse than before, and therefore Dr. Atkins assisted their opinions, that his disease was a corrupt putrid fever, seated under the liver, in the first passage. The malignity by reason of the putrefaction (in the highest degree) was venomous.

"The tenth increasing convulsions, greater ravings, and fever violent; and therefore Mayern advised more bleeding, but the rest would not, but applyed pigeons and cupping glasses to draw away the pain.

"The eleventh small hopes, all accidents violently increasing, no applications giving ease, his chaplains continuing their daily devotions by his bed side, the Archbishop of Canterbury, and Doctor Melborn, Dean of Rochester, and others with whom he daily prayed.

"The twelfth no hope. The King with excessive grief removes to Kensington House.

"There were added Doctor Palmer and Doctor Guifford, all imaginable helps, cordials, diaphoretick, and quintessential spirits, and a water from Sir Walter Raleigh, prisoner in the Tower; all these were by consent administered without any effect.

"And so he died at eight a clock at night, Friday, the sixth of November, 1612.

"The corps laid upon a table, the fairest, clearest, and best proportioned, without any spot or blemish.

"The next day was solemnly appointed for imbowelling the

corps, in the presence of some of the counsell, all the physicians, chirurgians, apothecaries, and the Palsgraves physician.

"And this is the true copy of their view, under their hands as followeth :—

"The skin, as of others blackish, but no way spotted with blacknesse, or pale marks, much less purpled, like flea-bites, could shew any contagion or pestilenticall venome.

"About the place of his kidnies, hipps, and behind his thighs, full of rednesse, and, because of his continuall lying upon his back, his belly somewhat swollen and stretched out.

"The stomach whole and handsom within and without, having never in all his sicknesse been troubled with vomiting, lothing, or yelping, or any other accidents which could shew any taint.

"The liver marked with small spots above, and in the lower parts with small lines.

"The gall bladder, void of any humour, full of wind.

"The spleen on the top and in the lower end, blackish, filled with heavy black blood.

"The kidnies without any blemish.

"The midrife, under the filme or membraine containing the heart (wherein a little moysture) spotted with black leadish colour by reason of the bruising.

"The lungs, the greatest part black, the rest all spotted with black, unbrewed and full of adust blood, with a corrupt and thick serocity, which, by a vent made in the lungs, came out foming in great abundance. In which doing, and in cutting a small skin which invironeth the heart to shew the same, the chirurgian by chance cutting the trunck of the great veine, the most part of the blood issued out into the chest, leaving the lower veins empty; upon sight whereof, they concluded an extream heat and fullnesse, and the same more appeared that the windpipe, with the throat and tongue, were covered with thick blacknesse.

"The tongue cleft and dry in many places.

"The hinder veins, called piamater, in the inmost filme of the braine, swolne, abundance of blood, more than natural.

"The substance of the braine, faire and cleere, but the ventricks thereof full of cleere water, in great abundance, which was ingendered by reason of the feaver maligne, divers humors being gathered together of a long time beefore, he not being subject to any dangerous sicknesse by birth.

"The other part, by reason of the convulsions, resoundings

and hennammings, and of the fullnesse, choaking the naturall heat, and destroying the vitalls by their malignity, have convayed him to the grave without any token or accident of poyson.

"His admirable patience in all his sicknesse might deceive the physicians, never dreaming danger.

"The urines shewd none ; and the unknown state of his greatest grieffe lay closely rooted in his head, which in the opening was discovered.

"But the picture of death, by a strange extraordinary countenance, from the beginning possessing him, hath been the cause that some vainely rumored that he was poysoned.

"But no symptome appearing, it is surmised that he might be poysoned by a sent.

"But indeed he died in the rage of a malicious extraordinary burning fever."

This very interesting report of the illness, death, and autopsy of the heir to the English throne, will, I trust, give the reader an additional interest in the "*Royal Cordial*," the use of which was superadded to the strictly professional treatment of Sir Theodore Mayerne and his colleagues. The contents thereof were frequently discussed after Raleigh's death—not only in England but on the Continent. The most prominent French chemist of his time, Le Febre, devoted a special treatise to its consideration. The following is his account of its composition :—

RALEIGH'S "*Royal Cordial*."

"Eximium Cordiale Regium : Multis rebus necessariis auctum, secundum consilium & approbationem Illustrissimorum Virorum, D. D. KENELMI DIGBY, Equitis Aurati, & Serenissimæ REGINÆ MATRIS Cancellarii, & D. D. ALEXANDRI FRAISER, Equitis Aurati, & Serenissimi ac Potentissimi Regis Caroli Secundi, &c., Archiatrorum Comititis.

"*Recipe* :

"Rasuræ Cornu Cervi libram unam ;

"Carnis Viperarum cum Cordibus & Hepatibus uncias sex ;

"Florum Boraginis, Buglossæ, Roris-marini, Calendulæ, Veticæ Coronariæ rubræ, Roris Solis, Rosarum rubrarum, & Sambuci, singulorum libram semissem ; Herbarum Scordii, Cardui benedicti, Melissæ, Dictamni Cretici, Menthæ, Majoranæ, Betonicæ singularum manipulos duodecim ;

- "Granorum Kermes recenter in rob redactorum, Cubebarum, Cardamomi Majoris, Baccarum Juniperi, Maceris, Nucis Myristicæ, Caryophyllorum, Croci, singulorum uncias duas ;
- "Cinnamomi acutissimi, corticis ligni Sassafras, flavedinis malorum Citriorum & Aurantiorum, singulorum uncias tres ;
- "Lignorum Aloës & Sassafras, uniuscujusque uncias sex ;
- "Radicum Angelicæ, Valerianæ, Carlinæ, Fraxinellæ seu Dictamni albi, Serpentariæ Virginianæ, Zedoariæ, Tormentillæ, Bistortæ, Aristolochiæ longæ, rotundæ & cavæ, Gentianæ & Imperatoriæ, singularum unciam unam & semissem.
- "Omnia incisa & grosso modo contusa in vase idoneo prosita cum Spiritu Vini rectificato extrahantur secundum Artem Tincturæ filtratæ in extractum mediante, in Mariæ balneo, distillatione evaporentur. Magma expressum comburatur ; Cineres reverberati per aquam elixivientur, unde Sal purum lege Artis paretur, quod Extracto misceatur. His ita peractis, huic Extracto adde, ut Artis est, Pulverem sequentem cæteraque ingredientia.
- "*Recipe :*
- "Lapidum Bezoardicorum orientalium & occidentalium verorum, uniuscujusque unciam semissem ;
- "Magisterii solubilis Perlæ orientalium uncias duas ;
- "Magisterii solubilis Corallorum rubrorum uncias tres ;
- "Boli orientalis, Terræ sigillatæ veræ, Unicornu mineralis, Cornu Cervi Philosophicè præparati, & Cornu Cervi calcina'ti, singulorum unciam unam ;
- "Ambra griseæ electissimæ in Essentiam redactæ, unciam unam ;
- "Moschi orientalis optimi essentificati, drachman unam & semissem ;
- "Croci Solis cum tinctura Antimonii Basilii Valentini parati drachmas duas ;
- "Sacchari candisati albi subtilissimè pulverisati, libras duas.
- "Ex his omnibus mixtis & ex Arte unitis fiat Confectio verè Regia, quæ ad usum reservetur in pyxidibus apprimè clausis.

It is not, after all, very hard to conceive how an amateur therapist could fancy that, with repeated whiffs of grape-shot

and shrapnel taken from the above magazine, most of the germs and factors of disease—at least of such forms of disease as were not essentially fatal—could be effectively withstood, and even exterminated. The list includes all the most valued remedies, as recognised at that period; while its contents represent all three Kingdoms of Nature—animal, vegetable and mineral. The items are too numerous to be discussed in detail; but I will lay before the reader some of the scientific lore of that period in connection with a few of the more curious (and then celebrated, though now neglected, or completely disused).

That respectable and highly prolific authority, William Salmon, is, of course, profuse on the subject of the therapeutic possibilities of the various organs of the Cervus ("Hart, Deer, or Buck"), and discourses as follows when he reaches "*The Horns*. They are Sudorifick, Alexipharmick, and Analeptick, Cephalick and Hysterick. 1. The burning of Harts-horn. *The Colledge orders them to be Calcined in a crucible till white, then beaten into powder, washt in Rose-water levigated upon a Marble, and made into Troches. In the last pound of Rose-water you may dissolve Camphire ʒss, if you please.* It has all the former Vertues, stops Fluxes, resists Poyson, provokes Sweat, kills Worms, and is a good thing for Children. Dose à ʒi ad 3j. 2. Magistery of Harts-horn. *Dissolve rasped Harts-horn in Distilled Vinegar; precipitate with Oyl of Tartar of Vitriol, wash and dry; you may also dissolve it with Spirit of Nitre or Aqua fortis, but 'twill be apt to flame; to prevent which, to the Solution put a quarter part water; filter, precipitate, and sweeten.* If you precipitate with *Alcalies*, the Magistery will be yellow; but if with *Acids*, white. This has the former Vertues. 3. Gelly of Harts-horn. *Take the shavings, boyl them in Spring-water till they are dissolved, filter, and then coagulate: If you make the water sharp with Oyl of Sulphur, 'twill dissolve the sooner. It restores in Consumptions.* 4. Liquor, Oyl and Volatile Salt of Harts-horn. *They are drawn by a Luted Retort in a naked fire, so have you a sharp Liquor mixed with flegm (which is vulgarly called Spirit), Volatile Salt and Oyl, which rectifie. These have all the Vertues of the Horn, besides which, there is scarcely any thing known more excellent against Fits of the Mother, Apoplexies, Convulsions, Epilepsies, and Palsies.* Dose à gr. iiii ad viii. or xii. 5. Fixed Salt of Harts-horn. *It is done after the common way. It cures all sorts of fits. Some digest this Salt with rectified S. V. a Month, and then draw off a good part of the S.V.*

keeping the remainder. Dose à gr. vj ad 3ss. 6. Extract of Harts-horn. It is done by adding its proper water to the shavings, and then extracting the tincture by a convenient digestion. 7. Water of Harts-horns. R. Young Deers horns full of blood, cut them into small pieces, and then distil them in the heat of a Bath, per se, or with a small mixture of Canary-wine, till all the Liquor be come forth. It is a very good thing against the Falling Sickness, Convulsions, and all sorts of burning and Malignant Feavers. Dose one spoonful either alone or with Piony-water, or in Rhenish-wine."

The wondrous muscular activity of the Deer was undoubtedly one of the features which enlisted the hopes of the purveyors of the great system of *Animal Therapeutics* of the older centuries; of which a feeble revival has been attempted in recent years. To this attraction, produced by a very obvious physiological peculiarity, was superadded the more mysterious magnetism of the animal's reputation for longevity.

Then the uncanny movements and destructive powers of the serpent tribe induced the development of expecting hopes in the therapeutist of pre-scientific ages. The strange animal whose movements formed one of the few insoluble puzzles, which were recognised as such by the wisest of men, became in the remote ages a common symbol of *wisdom* from its supposed "subtlety"; of *death*, from its powers of destruction to life; and of *immortality*, from the fact that it easily formed a circle (the line without beginning or ending) by inserting its tail in its own mouth. The pharmacologists took the available hints and acted on them. Serpentine therapeutics form a considerable section in Salmon's *New Dispensatory*. The following extract is from the paragraph which deals with the Viper in this aspect:—

"The Flesh, Liver and Bones have no Poyson in them. 1. *The Head* of the Viper is used as an Amulet, to be hung about the Neck, and to cure a Quinsie. 2. *The Flesh* is hot and dry: and purges the whole Body by Sweat; and being eaten or drunk, it cures the *French Pox* and the Leprosie. 3. *The Broth* of them performs the same things, eating half a Viper at once, and fasting five or six hours after it; so also they cure all old Ulcers and Fistula's, clears the Eye-sight, help the Palsy, and strengthen the Nerves. 4. *The Ashes of their Heads* mixt with a thick Decoction of bitter Lupius, and used as an Oyntment to the Temples, stops Rheums falling into the eyes, and helps their

Dimness, and is an excellent thing against St. Anthony's Fire.

5. *The Fat or Grease* mixt with Honey, is an excellent thing to clear the sight. 6. *The whole Viper* in powder (the Head and Gall excepted) cures perfectly the Gout, King's Evil, taken twice a day to ʒij or more. 7. *Oleum Viperarum*. R. *Black Vipers* lbij. *Oyl of Jessamin* lbij *boyl them in a close Glass, till the flesh falls from the Bones; or you may make an Oyl of them by Descension*. It cures the Gout, Palsie and Leprosie, cleanses the skin, and helps all the Defects thereof. 8. *Viper Wine*. *It is made by drowning live Vipers in the Wine*. It cures Leprosies and the French Pox. 9. *Powder of Vipers Compound*. It is made as that of Serpents, and has all the same Virtues. 10. *Quintessence of Vipers*. *It is made as we have taught in our Dor. Med. Lib. 2. Chap. 8. Sect. 2.* and is very powerful against Leprosies, the French Pox and all Impurities of the Flesh and Blood. 11. *Essentia Viperarum*. R. *Of the Livers and Hearts of Vipers*, ana. *dry and bruise them, and extract a tincture in 7 days with S. V. rectified: to lbj of this Tincture add of the fixed Salt ʒss, mized with the Flegm and Spirit of Vipers, drawn off by distillation; of the Volatile Salt ʒj digest till they are united; so have you a most ennobled Essence of Vipers, powerful to all the aforesaid intentions.* Dose *ad ʒij*. It is a most excellent Medicine, Dissolves all Excrements and Coagulations of Humors, Dissolving, Purifying and Cleansing like Soap; carrying out every ill by Urine, Sweat, or insensible Transpiration, curing all sorts of Gouts, the Stone in both Reins and Bladder, Leprosie, French Pox, Scurvy, Melancholy, all Obstructions and Putrefaction, loss of strength, decays of Nature and Consumptions, so that, as it were, it even renovates a Man, by taking away what is contrary to Nature, and adding what is requisite. 12. *Spirit, Oyl Volatile and fixed Salt of Vipers*. R. *Dryed Vipers with the Liver and Hearts, cut and partly bruise them, put them into a Retort, from which distil gradatim into a large Receiver; so have you a flegm and spirit, and then a Volatile salt, sticking to the neck of the Retort, and sides of the Receiver; and at the last a thick stinking Oyl, which sepearate. Purify the Volatile salt in a long glass, and sublime it by an Alembick in sand, with a gentle fire, lest any humidity should follow, as is usual if the fire be increased. This salt is wonderful piercing and volatile, and therefore ought to be kept close in a glass, with a glass stopper: From the Caput Mortuum you may make a fixed salt the common way.* The Volatile Salt and Spirit, are wonderful

Medicines, they resist Putrefaction, open all obstructions, cure Quartans, and all sorts of Feavers, given an hour before the Fit, in a convenient Vehicle, to allay the sharpness, as in the Emulsion of Almonds with a little rose and Cinamon-water and white Sugar, Dose of the Volatile Salt is a gr. vi. ad x. or xii. of the fixed a ʒss ad ʒj or ʒss."

A goodly proportion of the vegetable remedies contained in Raleigh's *Royal Cordial* are still known to therapeutic fame, although the brilliancy and artistic—sometimes approximately miraculous—decorations, with which most were then furnished, have become badly obscured or grossly tarnished. Even a single glance at the various names of the ingredients reveals a vast area of therapeutic history; as all the agents are included which had secured the foremost positions in the scientific estimation of the learned oligarchy of that age—many of these being based on the claims advanced on their behalf by Dioscorides, Pliny, and Galen. They are too numerous to be discussed *seriatim*; but a few references to the less familiar items—in the scientific language of the seventeenth century—may interest the inquiring reader of the twentieth. The *Grana Kermes* were formed of the—

"Juyce of the berry Chermes. The best grain are such as are whole, are of a blackish red, and have a little Worm in them. Essence, Juyce, or extract of Chermes is made of the Fruit bruised with Spirit of Wine, or good Canary, Sherry or Rose-water, made sharp with some drops of Spirit or Oyl of Sulphur. It is hot and dry, a great Cordial, Sudorifick and Alexipharmick; it comforts the heart, revives all the Spirits, Natural, Vital, and Animal, refreshes a weary Carcass, hastens the birth in Travel, drives out the Measles and small Pox, resists the Plague, and all Pestilential Feavers, defends the heart from Poyson, cures wounded Nerves, and is Traumatick and Pectoral."

The *Sassafras* was popularly denominated the *Ague-Tree*, from one of the virtues attributed to it by public opinion. "It is a great Tree growing in Florida (with a leaf like a Fig-Tree) of an Aromatic smell and taste. The Bark is the best, especially if it comes from the Root; . . ." And we further learn "Of Sassafras Wood or Root. It is hot and dry in 3°. It attenuates, opens, discusseth, and is Sudorifick: It helps most diseases proceeding from obstructions, and is of singular use in diets in the French-Pox: it strengthens the whole body, and

cures barrenness : and is a kind of *Panacea* or Universal remedy against defluxions of Rheum."

Of the mineral ingredients of the *Royal Cordial*, but few, if any, have transmitted their reputation down to the twentieth-century.

The *Magisterium Coralliorum* was thus prepared :—

"Dissolve lævigated Coral in Spirit of Radicate Vinegar, that it may overtop it the breadth of three or four fingers ; digest in ashes, then decant the solution, putting on more vinegar till the residue is dissolved, filter and with Oyl of Tartar *per deliquium* precipitate, so will a white powder fall to the bottom, which sweeten by washing with cordial waters and drye."

The authoritative William Salmon held this preparation in very backward respect. Regarding it he observes :—

"That the difference between the Salt and Magistery is this : The Salt is the Calx of Coral impregnated with some of the acid Spirits of the Menstruum, incorporated in it by Crystallization. The Magistery is the said Calx freed from the said Acids by washing : hence it is that the Salt is a little acid, the Magistery insipid. The Magistery of Coral is reported to have the Vertues of Coral ; but simple levigated Coral is an hundred times before it. For the Vertue of Coral is to destroy acids and unnatural ferments (which are the cause of most Diseases) ; if once its alkalious matter be satisfied, and weakened by an external agent, before it comes within the Body ; Reason tells us it will be impossible for it to act at all within ; a thing can be but full, and being full, 'twill hold no more : Therefore I advise rather to the crude Levigated powder."

The *Bezoar* stone being an abnormal constituent of the animal body ("found in the Stomach, or Cavities adjacent to the Breast, of an oval form, . . .") must needs be endowed with therapeutic powers correspondingly (supernatural or) abnormal : "The *Persian* is best, then that of *Peru*, then that from *New Spain*. It is Cephalick, Cardiack, Sudorifick, Antifebrick, and Alexipharmick. It is excellent in Vertigoes, Epilepsies, Megrims, Melancholy, Quartans, Old Diseases, Measles, Small-pox, Plague, Poysons, Worms, all sorts of Fevers, Faintings, Palpitation of Heart, Jaundice, Cholick, Stone, Stoppage of the Terms, giving also easie Labour to Women in Travel. Outwardly it is excellent in Scald Heads, burns, scalds, ulcerated Cancers, Scrophula's."

The various *earths* employed in Raleigh's *Cordial* owed, of course,

whatever (non-imaginary) properties they possessed to special chemical constituents. The *Bolus Orientalis* possessed a vast reputation in those days. We are told that: "It is a pale red Earth, impregnated chiefly with Iron Vapors. It is very dry, Astringent, and strengthening; good to stop Fluxes, thicken Humors, resist Putrefaction, expel Poyson: and therefore is excellent against the Diarrhœa, Dysenteria, flux of the Terms, Catarrhs, Spitting Blood, Bleeding at Nose, and Wounds, &c.; often used outwardly in strengthening Cataplasms, and binding Powders." It owed a large proportion of its reputation to the fact that its use—taken in Wine—was recommended by Galen in the treatment of "putrifying Ulcers of the Mouth, Ulcers in the Tabes, and Pestilential Diseases."

The ingredient of Raleigh's noted specific, whose seventeenth century natural history reads most curiously in the light of our present knowledge, is, perhaps, *Ambra grisea*. We find that the authoritative view then was held that—

"It is a Marine Sulphur, found at the Sea-shore, chiefly in the *Indies*, which breaks from Fountains and Caverns of the Sea. It is either natural or factitious. The natural, which is best, is grey, sweet and smooth, pricked with a needle it sweats out fatness, softens in the heat, and when moist appears black. The factitious or adulterate is a cheat, being black or whitish, made of a little mixture of Musk and Civet with Storax, Labdanum and wood of Aloes, and may easily be known by the Scent. It is hot and dry, an excellent corroborative, it is discutient, resolute, alexipharmick and analeptick; it strengthens the heart and brain, revives and recreates the spirits, natural, vital and animal: Its sweet Sulphur is an excellent Perfume; it is a good preservative against the Plague, and preserves the Spirits from infection: Dose à gr. j ad iijj."

The perusal of such items of opinion and representations of facts, as they exist in the records of the dawn of science, must have an interest for every student of the development and progress of knowledge and civilisation, and should surely have a special attraction for the medical man who is devoted to his profession. The selection of remedies used in the preparation of Sir Walter Raleigh's panacea demonstrates the fact that his therapeutic ideas, and their practical application, were far more clearly defined than were those of his famous contemporary, Sir Francis

Bacon; who, by his own account, had been "puddering in physic" all his life. Raleigh's association with Ireland has, I should hope, given him a special attraction for all readers of the DUBLIN MEDICAL JOURNAL. Although he took part in the drastic therapeutics of Irish disaffection, we should never forget that he originally introduced the soul-soothing *weed*, and the life-supporting *pomme de terre*, to our native Hibernian soil. Those of his actions which in our eyes merit the severest criticism were the very natural products of an age of endless intrigue and hopelessly entangled morality. If he was instrumental in making the later life of Salisbury a prolonged martyrdom—though an impure one—the physical woes of that statesman were regarded by many as a just judgment of Providence for his persistent and successful efforts to complete the ruin of Essex. But we may state, without hesitation, that bravery, wit, and appreciation of the healing art were never more happily combined by human speech than they were in the words of Walter Raleigh on the scaffold in the cold morning air of October 29, 1618, when on feeling the edge of the axe with which his neck was about to be severed, he said with a dignified smile: "This gives me no fear. It is a sharp and fair medicine to cure me of all my diseases."

LITERARY NOTE.

MR. WILLIAM HEINEMANN, 20 and 21 Bedford Street, London, W., has in hand, under the title of "A Handbook of Metabolism," an English translation of the second German edition of von Noorden's "Lehrbuch des Stoffwechsels," which is now passing through the press in Germany. It is being edited by Dr. Walker Hall, of Manchester, and will be published in the Spring, as soon as is practicable after publication of the original. The first edition was issued in 1895, and was soon exhausted. Since then so much work has been done in this field of research that the present edition is necessarily about three times the size of the first one. In addition to von Noorden, Magnus Levy, Weintraud, Embden, and others have contributed to the forthcoming volume.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

For four weeks ending Saturday, December 30, 1905.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending December 30, 1905, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 17.8 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,093,959. The deaths registered in each of the four weeks ended Saturday, December 30, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality.

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Dec 9	Dec. 16	Dec. 23	Dec. 30			Dec. 9	Dec. 16	Dec. 23	Dec. 30	
22 Town Districts	20.5	18.6	19.6	17.8	19.1	Lisburn -	22.7	18.2	22.7	18.2	20.4
Armagh -	13.7	13.7	20.6	27.5	18.9	Londonderry	17.4	8.7	13.6	11.2	12.7
Ballymena	23.9	33.5	14.4	14.4	21.5	Lurgan -	8.9	-	26.6	22.1	14.4
Belfast -	21.5	18.5	21.2	18.0	19.8	Newry -	4.2	16.8	21.0	21.0	15.8
Clonmel -	10.3	15.4	35.9	10.3	18.0	Newtownards	28.6	34.3	11.4	51.5	31.4
Cork -	18.5	23.3	13.7	20.5	19.0	Portadown -	20.7	10.3	5.2	10.3	11.6
Drogheda -	12.3	8.2	12.3	16.3	12.3	Queenstown	26.4	26.4	19.8	6.6	19.8
Dublin - (Reg. Area)	22.0	19.7	22.3	17.9	20.5	Sligo -	19.2	19.2	4.8	14.4	14.4
Dundalk -	23.9	19.9	27.9	16.0	21.9	Tralee -	15.9	5.3	-	15.9	9.3
Galway -	27.2	27.2	3.9	27.2	21.4	Waterford -	17.5	9.7	7.8	7.8	10.7
Kilkenny -	24.6	14.7	14.7	4.9	14.7	Wexford -	14.0	9.3	14.0	32.7	17.5
Limerick -	15.0	24.6	20.5	16.4	19.1						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, December 30, 1905, were equal to an annual rate of 1.0 per 1,000, the rates varying from 0.0 in fifteen of the districts to 12.0 in Dundalk, the 4 deaths from all causes in that district including 3 from whooping-cough. Among the 124 deaths from all causes in Belfast are 2 from enteric fever and one from diarrhoea. The 30 deaths from all causes in Cork include one from enteric fever and 2 from diarrhoeal diseases; and the 9 deaths in Newtownards include 2 from measles.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, December 30, amounted to 184—78 boys and 106 girls; and the deaths to 139—63 males and 76 females.

DEATHS.

The deaths registered during the week ended Saturday, December 30, represent an annual rate of mortality of 19.1 in every 1,000 of the population. Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the area, the rate was 17.9 per 1,000. During the fifty-two weeks ending with Saturday, December 30, the death-rate averaged 22.3, and was 3.5 below the mean rate for the corresponding portions of the ten years 1895–1904.

The 139 deaths include one from whooping-cough, 2 from diphtheria, one from *pyrexia* (origin uncertain), 3 from enteric fever, and 2 from *diarrhoea*, dysentery. There was one death from influenza.

The deaths from enteric fever were 2, one, and 4, and the deaths from diarrhoeal diseases were 2, one, and one, in each of the 3 weeks preceding that under notice.

Eight deaths were attributed to broncho-pneumonia and 3 deaths to *pneumonia* (not defined).

In each of the 3 preceding weeks the total deaths from all forms of tuberculous disease were 28, 24, and 31. In the week under notice the deaths were 20 in number, and include 5 deaths from tubercular phthisis, 14 deaths from *phthisis*, and one death from general tuberculosis.

There were 4 deaths from carcinoma and 2 deaths from cancer (undefined).

The death of one infant was due to prematurity.

The deaths (numbering 9) from diseases of the brain and nervous system include the deaths of 4 infants under one year of age from *convulsions*.

Diseases of the heart and blood vessels accounted for 30 deaths.

There were 19 deaths from bronchitis.

Five deaths were caused by accidents, including the deaths of 2 children under 5 years of age from burns, and one homicidal death was registered.

In 6 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 4 children under one year of age and the deaths of 2 persons aged 60 years and upwards.

Twenty-seven of the persons whose deaths were registered during the week were under 5 years of age (19 being infants under one year, of whom 6 were under one month old) and 43 were aged 60 years and upwards, including 21 persons aged 70 and upwards, of whom 6 were octogenarians.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious disease notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended December 30, 1905, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epi- demic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Dec. 9	-	•	•	5	-	-	4	-	3	2	10	-	•	•	•	24
	Dec. 16	-	•	•	10	-	-	3	-	3	12	9	-	•	•	•	37
	Dec. 23	-	•	•	6	-	-	10	-	7	15	15	-	•	•	•	38
	Dec. 30	-	•	•	2	-	-	1	-	-	6	6	-	•	•	•	15
Rathmines and Rathgar Urban District	Dec. 9	-	•	•	-	-	-	-	-	-	-	1	-	•	•	•	1
	Dec. 16	-	•	•	-	-	-	1	-	-	-	-	-	•	•	•	1
	Dec. 23	-	•	•	-	-	-	-	-	-	1	-	-	•	•	•	1
	Dec. 30	-	•	•	-	-	-	-	-	-	2	-	-	•	•	•	2
Pembroke Urban District	Dec. 9	-	-	-	2	-	-	-	-	-	1	2	-	•	-	-	7
	Dec. 16	-	-	-	2	-	-	5	-	-	-	-	-	•	-	-	7
	Dec. 23	-	-	-	2	-	-	-	-	-	-	1	-	•	-	-	3
	Dec. 30	-	-	1	-	-	-	-	-	-	1	-	-	•	2	-	4
Blackrock Urban District	Dec. 9	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Dec. 16	-	•	•	-	-	-	1	-	-	-	-	-	•	•	•	1
	Dec. 23	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Dec. 30	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
Kingstown Urban District	Dec. 9	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Dec. 16	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Dec. 23	-	•	•	-	-	-	-	-	-	-	1	-	•	•	•	1
	Dec. 30	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
City of Belfast	Dec. 9	-	•	•	15	-	-	5	-	10	20	8	1	•	•	•	59
	Dec. 16	-	•	•	19	-	-	2	2	8	15	6	-	•	•	•	52
	Dec. 23	-	•	•	19	-	-	5	-	8	15	9	1	•	•	•	57
	Dec. 30	-	•	•	19	1	-	2	-	10	15	8	-	•	•	•	56

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended December 30, 1905, 3 cases of measles were admitted to hospital, 7 patients were discharged, and 7 patients remained under treatment at its close.

Seven cases of scarlet fever were admitted to hospital, 3 were discharged, and 54 cases remained under treatment at the close of the week. This number is exclusive of 10 convalescents who remained under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

Two cases of typhus remained under treatment at the close of the week.

Eight cases of diphtheria were admitted to hospital, there

were 2 deaths, and 38 patients remained under treatment at the close of the week.

Seven cases of enteric fever were admitted to hospital, 5 were discharged, 4 died, and 23 cases remained under treatment in hospital at the end of the week.

In addition to the above-named diseases, 8 cases of pneumonia were admitted to hospital, 5 were discharged, there was one death, and 20 cases remained under treatment at the close of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended December 30, in 76 large English towns, including London (in which the rate was 17.8 was equal to an average annual death-rate of 17.4 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 18.2 per 1,000, the rate for Glasgow being 18.5, and for Edinburgh 15.8.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of December, 1905.

Mean Height of Barometer, - - -	30.096 inches
Maximal Height of Barometer (12th, 10 30 a.m.), - - -	30.938 „
Minimal Height of Barometer (28th, 9 a.m.) - - -	29.321 „
Mean Dry-bulb Temperature, - - -	46.2°
Mean Wet-bulb Temperature, - - -	44.0°.
Mean Dew-point Temperature, - - -	41.4°.
Mean Elastic Force (Tension) of Aqueous Vapour - - -	.263 inch.
Mean Humidity - - - - -	84.0 per cent.
Highest Temperature in Shade (on 25th), - - -	55.6°.
Lowest Temperature in Shade (on 10th), - - -	34.0°.
Lowest Temperature on Grass (Radiation) (10th) - - -	28.0°.
Mean Amount of Cloud, - - - - -	70.2 per cent.
Rainfall (on 13 days), - - - - -	1.264 inches.
Greatest Daily Rainfall (on 18th), - - - - -	.270 inch.
General Directions of Wind, - - - - -	S.W., S.S.E., W.

Remarks.

A singularly open, dull month, with scanty rainfall up to the 18th—namely, only .242 inch on but 6 days. An anticyclone of

great intensity and of considerable staying power lay over the British Isles from the 9th to the 17th—the mean height of the barometer in the week ended the 16th being 30.597 inches, and the unusual reading of 30.938 inches being recorded in Dublin at 10 30 a.m. of the 12th. The mean temperature of Christmas Day was 53.2°, or about 12° above the average for the time of year. A violent south-easterly gale raged round the Irish coasts on the 30th and 31st. It was apparently due to the obstruction offered to the advance of an Atlantic depression by an area of intense cold in Scandinavia. In the City of Dublin the estimated duration of bright sunshine was 51.75 hours, compared with 53.25 hours in 1902, 67.25 hours in 1903, and 55.25 hours in 1904—the daily average being 1.7 hours compared with 1.72 hours in 1902, 2.17 hours in 1903, and 1.8 hours in 1904.

In Dublin the arithmetical mean temperature (47.1°) was 5.4° above the average (41.7°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 46.2°. In the forty-one years ending with 1905, December was coldest in 1878 (M. T. = 32.8°), and in 1874 (M. T. = 36.8°); warmest in 1898 (M.T. = 47.6°), and in 1900 (M. T. = 47.1°). In 1904, the M. T. was 43.9°.

The mean height of the barometer was 30.096 inches, or 0.221 inch above the corrected average value for December—namely, 29.875 inches. The mercury rose to 30.938 inches at 10 30 a.m. of the 12th, and fell to 29.321 inches at 9 a.m. of the 28th. The observed range of atmospheric pressure was, therefore, 1.617 inches.

The mean temperature deducted from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 46.2°, or as much as 4.8° above the value for November, 1905. Using the formula *Mean Temp.* = *Min.* + (*Max.* - *Min.* × .52), the value was 47.2° or 5.3° above the average mean temperature for December, calculated in the same way, in the thirty years, 1871–1900, inclusive (41.9°). The arithmetical mean of the maximal and minimal readings was 47.1°, compared with a thirty years' average of 41.7°. On the 25th the thermometer in the screen rose to 55.6°—wind, S.S.W.; on the 10th the temperature fell to 34.0°—wind, S.S.W. The minimum on the grass was 28.0° on the 10th. There was no frost in the screen, and only one night of frost on the grass was recorded.

The rainfall was 1.264 inches, distributed over 13 days. The average rainfall for December in the thirty-five years, 1866–1900,

was 2.390 inches, and the average number of rainy days was 18. The rainfall, therefore, and also the rainy days were below the average. In 1876 the rainfall in December was very large—7.566 inches on 22 days. In 1868 (which was otherwise a fine and dry year), 4,749 inches fell on as many as 27 days. On the other hand, in 1867, only .771 inch was measured on 13 days; in 1885, only .742 inch on 10 days; in 1892, only .795 inch on 10 days; and in 1871, only .797 inch on 15 days. In 1904, 1.502 inches of rain fell on 17 days.

High winds were noted on 18 days, and attained the force of a gale on four occasions—the 5th, 18th, 30th and 31st. The atmosphere was more or less foggy in Dublin on the 12th, 13th, 16th and 29th. Hail fell on the 5th and 31st. A solar halo was seen on the 1st, and lunar halos appeared on the 6th, 7th and 15th.

The rainfall in Dublin during 1905 amounted to 25.277 inches on 193 days, compared with 22.180 inches on 189 days in 1904, 31.601 inches on 228 days in 1903, 29.375 inches on 203 days in 1902, 26.075 inches on 179 days in 1901, 34.338 inches on 216 days in 1900, 27.737 inches on 186 days in 1899, 27.048 inches on 194 days in 1898, 29.344 inches on 211 days in 1897, 26.901 inches on 194 days in 1896, 31.242 inches on 194 days in 1895, only 16.601 inches on 160 days in 1887, and a thirty-five years' average of 27.770 inches on 198 days.

Mr. Maurice Sydney Moore reports that, at the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 30.096 inches, the range of atmospheric pressure being from 30.904 inches at 9 p.m. of the 12th to 29.324 inches at 9 p.m. of the 28th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 46.8°. The arithmetical mean of the daily maximal and minimal temperatures was 47.2°. The screened thermometers rose to 55.1° on the 24th, and fell to 32.2° on the 10th. On this latter date the grass minimum was 22.1°. On the 25th the black bulb *in vacuo* rose to 75.9°. Rain fell on 13 days to the amount of 1.081 inches, the greatest fall in 24 hours being .230 inch on the 18th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 31.3 hours, of which 4.3 hours occurred on the 7th. The mean daily sunshine was 1.0 hour. The mean temperature of the soil at 9 a.m. at a depth of one foot was 44.0°; at a depth of 4 feet it was 45.6°.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall in December was 1.405 inches on 10 days, compared with 1.890 inches on 15 days in 1904, 2.830 inches on 18 days in 1903, and 2.920 inches on only 11 days in 1902. Of the total amount .465 inch fell on the 27th. From January 1st to December 31st, 1905, rain fell at Knockdolian on 160 days, to the total amount of 28.920 inches. The corresponding figures for 1896 were 36.102 inches on 169 days; 1897, 42.885 inches on 210 days; 1898, 30.546 inches on 171 days; 1899, 36.690 inches on 182 days; 1900, 42.716 inches on 191 days; 1901, 34.750 inches on 166 days; 1902, 40.021 inches on 168 days; 1903, 35.900 inches on 211 days; and 1904, 25.462 inches on 175 days.

Miss Muriel E. O'Sullivan returns the rainfall at White Cross, Stillorgan, Co. Dublin, at 1.948 inches on 12 days, .380 inch being measured on the 18th, and .378 inch on the 17th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 1.414 inches on 13 days. The greatest fall in 24 hours was .320 inch on the 18th. The mean shade temperature was 43.2°, the extremes being—highest, 53° on the 2nd; lowest, 29.5° on the 9th.

The Rev. Arthur Wilson, M.A., reports that rain fell on 20 days at the Rectory, Dunmanway, Co. Cork, to the amount of 5.41 inches. The heaviest falls were 1.76 inches on the 30th, .69 inch on the 24th, .68 inch on the 18th, and .60 inch on the 31st. No rain fell from the 9th to the 16th inclusive.

Deputy Surgeon-General C. Joynt, M.D., F.R.C.P.I., recorded 1.415 inches of rain on 15 days at 21 Leeson Park, Dublin. On the 18th, and again on the 27th, the measurement was .280 inch.

Mr. Robert O'B. Furlong, C.B., returns the rainfall at Clonsilla, Killiney, at 1.73 inches on 13 days. The maximal fall in 24 hours was .40 inch on the 18th. The average December rainfall of the 20 years (1885-1904) was 2.388 inches on 17.4 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 16 days to the amount of 1.71 inches, .30 inch being measured on the 30th. Temperature ranged from 58.0° on the 25th to 37.0° on the 10th. The mean shade temperature was 46.3° Fahrenheit. In 1903, 2.21 inches of rain fell on 20 days, and in 1904, 2.14 inches on 21 days. The total rainfall in 1905 at Lynton was 31.83 inches on 212 days.

At Wellesley-terrace, Cork, according to Mr. W. Miller, the

December rainfall was 3.58 inches on 17 days, the measurement being 0.87 inch less than the average. The greatest daily rainfall was 1.45 inches on the 30th. The year's rainfall at this station was 37.25 inches on 188 days, the total being 1.25 inches under the average, and the rainy days being 9 in defect. Mr. Miller observes that the mean temperature of the past December was 4.4° above that of November, whereas December on an average of 25 years should be 3° colder than November.

At the Ordnance Survey Office, Phoenix Park, Dublin, 1.251 inches fell on 17 days, .425 inch being recorded on the 27th. The total amount of sunshine at this station was 43.8 hours, the most on one day being 6.6 hours, on the 9th.

Dr. B. H. Steede reports that at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, rain fell on 18 days to the amount of 2.131 inches. The heaviest fall in 24 hours was .431 inch on the 27th. The highest temperature was 54.2° on the 6th and 7th, the lowest was 32.0° on the 15th. At this Normal Climatological Station the total rainfall during the year 1905 was 32.352 inches on 178 days. In 1903 it had been 41.820 inches on 231 days, and in 1904, 30.149 inches on 191 days.

Dr. J. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, reports that the mean temperature at that health resort was 47.1°, being 4.1° above the average for December during eighteen previous years (1873-83 and 1898-1904). The extremes were—highest, 55.7° on the 6th; lowest, 34.5° on the 10th. At Bournemouth the mean was 43.2°, the extremes being—highest, 57° on the 8th; lowest, 28° on the 12th. The mean daily range of temperature was 5.7°; at Bournemouth it was 8.6°. The mean relative humidity was 80 per cent. The mean temperature of the sea at Sandycove bathing-place was 46.5°, being 0.3° above the average for the month during the previous 7 years. The rainfall was 1.61 inches on 11 days, being 0.65 inches below the average for the month during fifteen previous years (1873-83 and 1901-04); at Bournemouth it was 0.74 inch on 11 days. The rainfall for 1905 at Kingstown amounted to 24.77 inches on 169 days, being 3.29 inches below the average for the fifteen previous years above named. During these previous fifteen years the greatest precipitation was that of 1880, amounting to 37.13 inches, and the lowest, 20.01 inches during 1904. On August 25th 3.13 inches was measured, being the greatest rainfall for 24 hours on record. The duration of bright sunshine for

the month was 48.8 hours, as compared with 43.8 hours at Ordnance Survey Office, Phoenix Park, 28.1 hours at Valentia, 29.7 hours at Birr Castle, 49.3 hours at Southport, and 43.5 hours at Hastings. The total duration of bright sunshine during 1905 was 1,581.4 hours, being 168.5 hours above the average for the previous 4 years.

RAINFALL IN 1905

At 40 Fitzwilliam-square, West, Dublin.

Rain Gauge:—Diameter of Funnel, 8 in. Height of top—Above ground, 1 ft. 4 in.; above sea level, 50 ft.

Month	Total Depth	Greatest Fall in 24 Hours		Number of Days on which .01 or more fell
	Inches	Depth	Date	
January, -	1.897	.589	16th	14
February, -	.750	.220	25th	12
March, -	2.781	.697	14th	20
April, -	2.466	.678	30th	25
May, -	1.182	.714	1st	10
June, -	1.175	.361	18th	11
July, -	.821	.110	9th	17
August, -	7.019	8.436	25th	22
September, -	1.225	.859	27th	14
October, -	1.196	.868	2nd	16
November, -	8.551	.676	1st	19
December, -	1.264	.270	18th	18
Year, -	25.277	8.436*	Aug. 25th	193

The rainfall was 25.277 inches, or 2.493 inches less than the average annual measurement of the thirty-five years, 1866–1900 inclusive—viz., 27.770 inches.

It is to be remembered that the rainfall in 1887 was very exceptionally small—16.601 inches—the only approach to this measurement in Dublin being in 1870, when only 20.859 inches fell; in 1884, when the measurement was 20.467 inches; and in 1883, with its rainfall of 20.493 inches. In nine of the thirty-five years in question the rainfall was less than 26 inches.

The scanty rainfall in 1887 was in marked contrast to the abundant downpour in 1886, when 32.966 inches—or as nearly as possible double the fall of 1887—fell on 220 days. In 1900

* Maximum.

the rainfall was 34.338 inches, or 6.568 inches in excess of the average for the thirty-five years, 1866–1900. Only twice since these records commenced has the rainfall in Dublin exceeded that of 1900—namely, in 1872, when 35.566 inches fell on 238 days, and in 1880, when 34.512 inches were measured on, however, only 188 days. In 1904 the rainfall was 22.180 inches on 189 days.

In 1905 there were 193 rainy days, or days upon which not less than .005 inch of rain (five-thousandths of an inch) was measured. This was 5 under the average number of rainy days, which was 198 in the thirty-five years, 1866–1900, inclusive. In 1868 and 1887—the warm, dry years of recent times—the rainy days were only 160, and in 1870 they were only 145.

In 1905 the rainfall in 24 hours, from 9 a.m. to 9 a.m., on only one occasion exceeded one inch—namely, on August 25th—but it then amounted to 3.436 inches, the greatest daily fall registered in Dublin since these records began. On no occasion in 1893 did one inch of rain fall on a given day in Dublin. In 1894 falls of upwards of an inch of rain in 24 hours were recorded on 4 occasions—viz., May 15th (1.330 inches), July 24th (1.560 inches), August 25th (1.369 inches), and October 23rd (1.042 inches). In 1895, 1.802 inches fell on January 12th, 1.014 inches on July 24th, and 1.256 inches on July 25th. In 1896, 1.563 inches fell on July 8th, 2.020 inches on July 24th, and 1.388 inches on December 8th. In 1897, 1.166 inches fell on September 1st. In 1898, on November 23rd, 1.732 inches were measured. In 1899, the rainfall exceeded one inch on 4 occasions—viz., July 11th (1.402 inches), August 5th (2.227 inches), September 30th (1.042 inches), and December 28th (1.129 inches). In 1900, as in 1899, the rainfall exceeded one inch on 4 occasions—namely, July 27th (1.783 inches), August 2nd (2.135 inches), November 6th (1.103 inches), and November 27th (1.126 inches). In 1901, the rainfall only once exceeded one inch, but on that occasion (November 11th) the measurement was 2.037 inches. In 1902, 1.342 inches fell on July 25th, and 2.075 inches on September 2nd. In 1903 the maximal daily rainfall was .966 inch on September 10th. In 1904, 1.092 inches fell on May 31st, and 1.197 inches on September 12th. The excessive rainfall on August 25th, 1905, is especially noteworthy—it amounted to 3.436 inches in Dublin (Fitzwilliam-square). It was the ninth occasion only since 1865—that is, in 41 years—upon which 2 inches have been measured

in Dublin at 9 a.m. as the product of the preceding 24 hours' precipitation. The previous excessive falls were—August 13th, 1874 (2.482 inches); October 27th, 1880 (2.736 inches); May 28th, 1892, 2.056 inches; July 24th, 1896 (2.020 inches); August 5th, 1899 (2.227 inches); August 2nd, 1900 (2.135 inches); November 11th, 1901 (2.037 inches); and September 2nd, 1902 (2.075 inches). On no previous occasion within the past 40 years had 3 inches or upwards been measured.

Included in the 193 rainy days in 1905 are 13 on which snow or sleet fell, and 25 on which there was hail. In January hail was observed on 2 days, in February on 3 days, in March on 9 days, in April on 4 days, in May and September on one day, in November on 3 days, and in December on 2 days. Snow or sleet fell on 3 days in January, 3 days in February, 2 days in March, one day in April, and 4 days in November. Thunder was heard once in June and twice in August. The only thunderstorm of the year occurred on August 9. Lightning was seen once in October and twice in November.

The rainfall in the first six months was 10.201 inches on 92 days. The rainfall exceeded 7 inches in August (7.019).

The rainfall was distributed quarterly as follows:—5.378 inches fell on 46 days in the first quarter, 4.823 inches on 46 days in the second, 9.065 inches on 53 days in the third, 6.011 inches on 48 days in the fourth and last quarter.

More or less fog prevailed on 44 occasions—7 in January, 2 in February, 5 in March, 1 in April, 1 in May, 2 in June, 1 in July, 0 in August, 4 in September, 6 in October, 11 in November, and 4 in December. High winds were noted on 125 days—14 in January, 10 in February, 14 in March, 15 in April, 6 in May, 4 in June, 8 in July, 8 in August, 13 in September, 7 in October, 8 in November, and 18 in December. The high winds amounted to gales (force 7 or upwards, according to the Beaufort scale) on 34 occasions—8 in January, 5 in February, 5 in March, 1 in April, 0 in May, 2 in June, 0 in July, 3 in August, 2 in September, 1 in October, 3 in November, and 4 in December.

Solar halos were seen on 8 occasions, a lunar halo on 8 nights. Bright aurora was seen on the evening of November 15th.

Mr. Robert O'Brien Furlong, M.A., C.B., writes:—

The rainfall at Cloneevin, Killiney, for the year 1905 amounted to 27.68 inches, which were measured on 180 days. This was .346 inch below the average (28.026 inches) of 20 years (1885-1904).

The number of days in which .01 inch or upwards fell was 4 below the average (184 days) for the same period.

The greatest amount measured in any month during 1905 was 6.71 inches on 18 days in August; the smallest, .79 inches on 10 days in September, and .79 inch on 14 days in February.

The greatest number of days on which rain fell in any month was 22 in April—the lowest, 9, in May.

The heaviest fall in 24 hours was on August 25th, when 3.06 inches were measured. The only other day on which an inch or upwards fell was May 9th.

The rainfall of August is the highest monthly rainfall recorded here, with the exception of July, 1896, when 6.72 inches fell on 22 days.

The rainfall of August 25th (3.06 inches) is the greatest daily record—the next highest being 2.81 inches on September 2, 1902, and 2.06 inches on November 23, 1898.

There was an absolute drought from September 13th to 26th, both included.

Snow, sleet or hail was observed on 14 days.

MONTH	Abs. Max.	Date	Abs. Min.	Date	Mean Daily Max.	Mean Daily Min.	Rainfall	Rainy Days	Mean Height of Barometer	Highest Pressure	Date	Lowest Pressure	Date	Prevailing Winds
January	53.9	6th & 8th	29.9	26th	47.6	39.3	1.597	14	30.132	30.999	28th	28.779	16th	W., S.W., S.S.E.
February	55.8	18th	32.0	20th	48.3	38.8	.750	12	30.160	30.659	21st	28.987	26th	W., S.W., N.W.
March	61.4	22nd	29.7	3rd	51.7	38.6	2.731	20	29.617	30.274	2nd	28.077	15th	S.W., W.
April	59.1	14th & 27th	30.0	8th	52.6	41.0	2.466	25	29.811	30.234	22nd	28.877	30th	N.E., S.E., W.N.W.
May	70.9	28th	36.9	4th	61.2	46.7	1.182	10	30.139	30.478	13th	28.800	1st	N.W., N.E., S.W.
June	77.0	26th	46.2	5th & 11th	66.3	52.8	1.175	11	29.951	30.860	22nd	29.658	17th & 28th	N.E., E.
July	81.8	14th	49.3	6th	70.7	56.9	.821	17	30.036	30.284	3rd	29.700	29th	W., S.W.
August	70.0	16th	46.0	31st	65.0	52.7	7.019	22	29.845	30.368	31st	29.019	4th	N.W., W.S.W.
September	68.1	4th	38.5	26th	60.7	49.0	1.225	14	29.974	30.394	17th	29.219	7th	W., S.W., N.E.
October	62.9	9th	29.0	21st	53.3	41.0	1.196	16	30.069	30.547	11th	28.965	30th	W., N.W.
November	55.9	22nd	23.6	19th	47.8	37.6	3.551	19	29.651	30.31	17th	28.775	21th	W., N.W.
December	55.6	25th	34.0	10th	50.5	48.7	1.264	13	30.096	30.938	12th	29.321	28th	S.W., W., S.S.E.
Extremes, Totals, and Means	81.8	July 14th	23.6	Nov. 19th	56.8	44.8	25.277	193	29.961	30.999	Jan. 28th	28.077	Feb. 26th	W., S.W., N.W.

JOHN WILLIAM MOORE, B.A., M.D. Dubl.; D.Sc. Oxon.; F.R.C.P.I.;
F. R. Met. Soc.

January 2, 1906

PERISCOPE.

HOUSE OF RECOVERY, CORK STREET, DUBLIN.

THE following paragraph will be of interest to many who know and value the great work which Cork Street Fever Hospital, Dublin, has been doing for more than a century in the field of Preventive Medicine :—"It was with infinite satisfaction we witnessed, on Saturday the 24th April, 1802, His Excellency the Lord Lieutenant* laying the first stone of a House of Recovery in Cork Street, where His Excellency arrived soon after two o'clock, and was received (in a tent, furnished with a profusion of wines, cakes, &c.) by the Lord Mayor, Sheriffs, Right Hon. Mr. Latouche, Hon. Mr. Pomeroy, Mr. Luke White, Mr. Randal M'Donnell, Mr. Dickey, Mr. Ferrar, Doctor Rennie, several Quakers, and many other gentlemen. Having inspected an elegant ground plan and elevation of the building, His Excellency put on the Masonic apron, and was presented with a large, beautiful silver trowel, made by Mrs. Keene, having the Hardwicke Arms on one side, and a suitable inscription on the other. After laying the first stone he returned to the tent, partook of the collation, and conversed some time with the company. The ground, which had been an old orchard, is spacious and well situated for the purpose, containing about six acres. To lessen the disease so fatal to manufacturers in the Liberties of Dublin is a work highly worthy of the benevolent men who promoted it. Who can help exclaiming—'Mercy and truth have met together; righteousness and peace have kissed each other; thus may the union, industry and prosperity of the Kingdom be established for ever.'"—*Walker's Hibernian Magazine*, 1802, p. 255.

CONGENITAL PNEUMONIA.

THE transmission of various substances through the placenta from the maternal to the foetal organism has been widely discussed in obstetrical literature, and many obscure points in the physiology of pregnancy have now been cleared up by the investigations in this field. The passage of volatile anæsthetics and soluble drugs from mother to child has often been demonstrated;

* The Earl of Hardwicke.

acquired immunity against a variety of diseases can also be transmitted, and likewise, apparently, some of the infectious diseases themselves. Instances of intra-uterine infection are infrequent, however, and this applies particularly to pneumonia, of which only a very few instances have been recorded. Bochenski and Gröbel (*Monatsschrift für Geburtshilfe und Gynäkologie*, October, 1905) present the history of such a case, where a woman developed a croupous pneumonia during the very last weeks of her pregnancy and then gave birth to a child which died within twelve hours with evidences of pulmonary disease. An autopsy showed the lungs of the infant to be in a state of grey hepatisation, and bacteriological examination disclosed the presence of the specific diplococcus. A *post-partum* infection in this case can be excluded, for both macroscopical and histological appearances of the lungs pointed to an invasion by the disease which failed to correspond in length of time with the brief period of extra-uterine existence. In attempting to trace the manner of the transmission of the disease from the mother to the foetus, the only satisfactory solution lies in assuming that the maternal circulation afforded such an outlet and a pneumococcaemia existed in the mother in addition to the pneumonia. The lesions which must have been present in the placenta in order to permit the pneumococcus to pass through this barrier are believed by the writers to have resulted from some mechanical injury to the placental villi, brought about possibly by the sudden increase of intra-uterine pressure during a severe coughing spell, which resulted in the condition designated as retroplacental apoplexy. The fact that the pneumococcus was deposited solely in the lungs of the foetus to the complete exclusion of all the other organs demonstrates quite conclusively that the pulmonary tissue is the site of predilection for this type of organism.—*Medical Record*, New York, December 23, 1905.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Wellcome's Photographic Exposure Record and Diary, 1906.

THE 1906 edition, whilst retaining all the important features which have contributed to the success of previous issues, has been brought thoroughly up to date. The exhaustive revision to which the whole book has been subjected is of special importance in the speed table. This comprises a list of English, Continental and American plates and films, giving the latest speeds to be used with Wellcome's Exposure Calculator. The monthly light tables, as in the 1905 issue, face the mechanical calculator affixed to the inside of the back cover. These light tables, printed on perforated leaves, are so arranged that as each month goes by the corresponding leaf can be removed, disclosing the table for the coming month. A glance at the light table and one turn of one scale is the only procedure necessary to ascertain the correct exposure for any subject under any condition of lighting. The simplicity of this method of computing exposure, combined with the general excellence and acknowledged completeness of Wellcome's Photographic Exposure Record, have caused this little pocket-book to maintain for some years the largest sale of any publication of its kind. It is anticipated that the book may be still further popularised by the inclusion in each copy of particulars of a prize competition in which purchasers may participate. Prizes of three guineas, two guineas and one guinea, respectively, are offered for photographs, produced with "Tabloid" Photographic Chemicals, suitable for reproduction in the 1907 edition. The conditions are at once simple and liberal. Messrs. Burroughs, Wellcome & Co. do not claim the sole copyright of the winning prints, but simply the right of reproduction, and this is limited to such as receive an award. The inclusion of two bookmarks is a convenience which will doubtless be appreciated. It should be noted that although there are two editions, as usual, one for the Northern Hemisphere, and one for the Tropics and Southern Hemisphere, Wellcome's Photographic Exposure Record and Diary for 1906 is issued in one style of binding only—art green canvas—and that the price is 1s.

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

MARCH 1, 1906.

PART I.

ORIGINAL COMMUNICATIONS.

ART. VI.—*Empyema*.^{*} By WALTER G. SMITH, M.D., Univ. Dubl., F.R.C.P.I.; Physician to Sir Patrick Dun's Hospital, Dublin; King's Professor of Materia Medica in the School of Physic in Ireland.

Πleurītis νοσός, the complaint in the side, was recognised by Hippocrates and other ancient Greek writers, and, as we all know, was for centuries confounded with other intrathoracic inflammations.

Since it is now plain that the recognition of pleural effusion can be determined only by physical signs, and not by symptoms, it is obvious that valid differential diagnosis was unattainable before the physical discoveries of percussion by Auenbrugger (1764) and of auscultation by Laennec early in the last century.

Wintrich (1854) was the first to lay the foundations of accurate diagnosis upon the sure basis of physics and physiology, and his essay is a landmark in the history of pleuritis.

Next came closer investigation of the pathology of inflam-

^{*} Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, January 19, 1906. [For the discussion on this paper see page 222.]

mation, and the complete diagnosis of pleural effusions is so intimately bound up with their pathology that it is not easy to avoid overlapping of these two aspects of the subject in hand.

My task, however, in this paper is to introduce the subject from the clinical side, and to this point of view I will keep as closely as possible. Without attempting a systematic survey, some special topics for discussion will be suggested. My remarks will deal with the two branches—viz., *Ætiology* and *Diagnosis*.

So far as the broad features of pleural effusions are concerned it is quite sufficient to group them under two subdivisions—

- (1.) Sero-fibrinous.—The per cent. of albumen is sufficiently exactly given by Reuss's formula.
- (2.) Purulent.— $A = \frac{3}{8} (S-1000) - 2.88$ (Exudates);
 $A = \frac{3}{8} (S-1000) - 2.73$ (Transudates).

Reuss's formula has been checked by gravimetric estimations. Take a transudate of sp. gr. 1012, subtract the constant 2.73 from $12 \times \frac{3}{8}$ and we get 1.77 per cent. of albumen. Similarly, an exudate of sp. gr. 1020 works out as 4.62 per cent. of albumen.

Other admixtures—*e.g.*, blood or putrefactive products are either accidental or incidental.

In multilocular effusions some of the cavities may contain pus, and others sero-fibrinous fluid.

An important feature, clinically, of purulent effusions is the corroding and peptic action which they display upon the surrounding tissues. By such chemical actions they penetrate into unexpected quarters, tunnel into the lung, or eat their way through the surface tissues (*empyema of necessity*). This event is most likely to happen with acute *empyema* and when there is but a thin layer of fibrinous exudate on the pleura.

ÆTIOLOGY.

Here the main advance in our knowledge is the replacement of vague hypotheses as to causation from exposure to cold, and such like unsatisfying notions, by the more definite and

illuminating doctrine that most pleurisies are due to and are caused by infective agencies.

If exposure to chill, beyond weakening the resisting power of the body, ever does actually bring about an internal inflammation the mischief may, perhaps, be more rationally attributed to the production and influence of endogenous chemical poisons, or the chill suffices to waken into activity dormant tubercle lying latent in lung or bronchial glands.

The pathologists who share in this discussion will, doubtless, enter fully into the bacteriology of acute pleurisy. This must, surely, form the basis of any sound classification of the different forms of the disease. There is no essential bacteriological difference between serous and purulent effusions.

We must distinguish between primary and secondary infections, and we have frequently to allow for cases of mixed infection—*e.g.*, tubercle bacilli and streptococci.

Suffice it here to say that evidence is steadily accumulating to establish three points, viz.—

(a.) The frequency and significance of the tubercle bacillus, especially in young adults. The after history supports this statement, and also the results of inoculation experiments.

(b.) The comparatively favourable outlook of effusions, although usually purulent, when due to the pneumococcus.

(c.) The serious and frequently fatal character of cases due to acute streptococcus invasion. (This is not universally admitted.) Streptococcal empyema is rare in children, but common in adults.

In one year von Ziemssen observed in his clinic eighteen cases of pleural effusion following on pneumonia, and all, without exception, were proved to be purulent. Yet they nearly all recovered, and two cases were dealt with merely by puncture and aspiration. So recently as 1860 pleurisy was stated by some authors to be rare in children.

It is still true that empyema in children is more often overlooked, and does not run quite on the same lines as in adults, and I invite attention to some points. For example, in adults serous effusions are four times as common as purulent effusions, but in children they occur in practically equal

numbers. Fully 75 per cent., perhaps nine-tenths of cases of empyema in children under five years, occur with or follow upon pneumonia. I will not dwell upon the differences in the visual, percutory and auscultatory signs, but it is well to recall the significant aspect of a young child suffering from empyema. Are we not struck, as Barlow long ago pointed out, by the emaciation, the sallow or lemon-coloured skin, the clubbed fingers, without cyanosis, and hectic fever absent or slight ?

Goodhart lays stress upon puffiness of the face in cases of large effusions.

Bilateral empyema is very rare in adults, but has been more often observed in children. In adults, the latency of pleural effusion, *quoad* symptoms, must be familiar to most practitioners.

DIAGNOSIS.

Since the treatment of pleural effusion may and does vary according to the form of the disease we must inquire into the means at our disposal for arriving at an exact diagnosis.

Dr. Hadley, in a brief and excellent communication to the *British Medical Journal*, Oct. 21st, 1905, summarises the data available for this purpose under seven heads :—

- (1.) Clinical.
- (2.) Cultural.
- (3.) By inoculation.
- (4.) By tuberculin.
- (5.) Jousset's microscopical method.
- (6.) Cytological.
- (7.) Sero-diagnosis.

To this list may now be added radiography.

Much good work has been done by French and German physicians and pathologists in several of these lines, the special discussion of which may be left to the other speakers.

The two most reliable aids, as well as the most convenient, are—

(a.) The determination of the cell-elements present in the effusion, as to number and kind.

Many of us will recall Dr. Earl's presidential address to the Section of Pathology on the scope and results of cytological investigations.

(b.) Jousset's inoscopic method.

The principle of this plan consists in peptonising, by artificial digestion, the clot that usually separates from the pleural exudate, and then microscopically examining the sediment yielded by centrifuging the digested fluid.

Jousset states that in twenty cases of primary sero-fibrinous pleurisy he was able, by this means, to demonstrate tubercle bacilli in all of them.

The tuberculin method is not quite free from danger, and some have likened it to looking for a gas leak with a lighted candle.

The remainder of my remarks will be devoted to a necessarily brief and fragmentary consideration of a few points in relation to the physical signs of pleural effusion, and I would ask special attention to the problem of the degree of pressure existing in the pleural cavity.

What is the smallest amount of liquid in the pleura that can be surely recognised by physical examination? Probably not less than 10 fl. oz.—i.e., half a pint.

What are the best means of detecting the presence of fluid? It is hardly necessary to emphasise the value of the information which can be gleaned by a careful *inspection* of the thorax as to form and movements.

We must bear in mind that a young child's thorax is circular rather than elliptical in outline, and that cyrtometric measurement seldom is of much account in children.

Speaking generally, *percussion* is, diagnostically, undoubtedly more valuable than auscultation, and it can scarcely be over-rated when intelligently carried out.

With effusions of considerable amount, and in the absence of extensive adhesions, it is often easy to verify the existence of the S-shaped upper limit of dulness, or, as it is sometimes called, Damoiseau's parabolic curve (1843). This curve has also been investigated by Garland and Ellis. It is best determined in the sitting position. Perceptible variation of the

curve of dulness with change of posture of the patient, although not always obtainable, is a sign of considerable value, and is almost absolute proof of the existence of a notable mass of fluid. It is better marked with transudates (renal or cardiac) than with inflammatory exudates.

Auscultation.—The signs obtainable by this method are less convincing and more fallacious, and differ considerably in the child and in the adult. I have several times verified Baccelli's sign—the exaggerated transmission of the *whispered* voice through thin serous effusions, as compared with its extinction by a purulent effusion, that is, one rich in cells. The sign, I am told, was plainly heard in my own case some years ago. I was suffering from pleural effusion, consequent upon an extensive hæmorrhagic infarction of the lung.

Vocal fremitus in young children is seldom, if ever, to be obtained, and in many women it cannot be elicited.

Bronchophony may be heard through a considerable mass of pleural fluid under favourable conditions. I am of opinion that bronchophony is better appreciated either by the naked ear or by the single stethoscope, keeping the other ear closed, than by the binaural instrument. A specially difficult case is presented by the combination of a small effusion with pulmonary atelectasis and catarrhal pneumonia.

In regard to vocal fremitus two points are to be noted—

(a.) Contrary to what is often taught, vocal fremitus in fibrinous pneumonia is not infrequently normal, or even *weakened*.

(b.) Vocal fremitus is often increased just above the upper limit of a pleural effusion.

EXPLORATORY PUNCTURE.

Exploratory puncture—preferably with a small aspirator, *not* a hypodermic syringe—is the most valuable and certain mode of ascertaining the presence of fluid, and its routine employment in all doubtful cases represents a real and important advance in clinical diagnosis.

Dr. Ewart has pointed out that, in the evolution of the

treatment of pleural effusions, three periods may be distinguished :—

(1.) From 1800–34 therapeutic measures were purely medical. Paracentesis was hardly ever practised.

(2.) From 1834–69 (from Davis to Dieulafoy) paracentesis gradually came into fashion.

(3.) From 1869 onwards medication fell into the background and surgical procedures took the lead.

Exploration fulfils two objects—

(1.) Positive determination of the presence of fluid. Very valuable in localised, encysted accumulations.

(2.) Informs us as to the nature of the fluid, and so directly influences treatment.

Care must be observed as to—

(1.) Depth of puncture—not too far, not far enough. Viscidity of fluid is spoken of as a possible hindrance, but it is a difficulty theoretical rather than real.

(2.) Several, perhaps many, punctures may be required before the fluid is found.

(3.) Possibility of mischief.

I have never had the ill luck to wound an intercostal artery, and Naunyn, in a very extended experience, once only met with such a misfortune. The patient died in a few minutes owing to a huge hæmothorax. At the autopsy the intercostal artery was proved to be exceptionally large and to be in a state of atheromatous degeneration.

A difficult problem in diagnosis sometimes arises in connection with peripleuritic abscesses, subphrenic or elsewhere. Some years ago I met with a puzzling case of this kind. At the autopsy a large and foul subphrenic abscess was found which had burrowed downwards inside the sheath of the right rectus abdominis. Some help may possibly be got by noting whether, during aspiration, the fluid drops from the trocar upon inspiration or expiration. If the former, this would indicate that the origin of the fluid was below the diaphragm. If exploratory puncture be followed up by withdrawal of a considerable amount of fluid by siphonage or aspiration we

should be careful not to remove more than 1000 cc. (1½ pints) at one sitting.

Naunyn once observed pneumothorax, due to rupture of the lung, follow upon too extensive evacuation of fluid.

Once only have I noted serous or albuminous expectoration after tapping the chest. A very surprising circumstance, and one which I can confirm, is the absorption of a pleural exsudate after a single exploratory puncture. Naunyn has observed this satisfactory result at least five times. One of the best signs of commencing absorption after puncture or tapping is the increased urinary flow, which may reach to 1500 cc.

The varying extent of pleuritic accumulations raises for consideration the question of intra-pleural tension, one of considerable practical significance, and one which is apt to be misapprehended.*

We frequently hear such expressions as these—"The chest full of fluid," "compression of the lung," "the heart is pushed over to the opposite side," &c., &c. Now, the problem is undoubtedly a complex one, and has not been fully solved as regards liquid effusions. With gas (pneumothorax) the difficulties of the problem are not so great. Our present state of knowledge may, I think, be summarised as follows:—The lungs are multilocular air-bags, highly elastic, and are normally in a constant state of over-distension. Hence there is a necessary tendency or effort, so to speak, to retract or collapse by virtue of their own elasticity, and the two layers of the pleura are subject to a continuous stress which tends to separate them. This stress is called the 'intra-pleural' tension, is obviously negative, and corresponds to a pressure of from 6–8 mm. of Hg.

Three factors influence the intra-pleural tension—

- (a.) The elasticity of the lungs, first and chiefly.
- (b.) The resistance of the chest-wall.
- (c.) The respiratory oscillations in the pulmonary tension.

*C/. Clinical Lecture on the Physics and Diagnosis of Pleural Effusions. Dr. Sutherland. *Lancet*, July 23, 1903. A valuable experimental paper by Dr. S. West on Intra-pleural Tension. *Med. Chir. Trans.* LXXXI., p. 273.

These correspond, in health, to a pressure of about 1 to 1½ inches of water.

Even with the most powerful expiration, as in coughing or vomiting, the intra-pleural tension remains negative. Now, suppose some fluid over and above the normal moisture accumulates in one pleural cavity, what must happen?—(1.) The corresponding lung at once takes its opportunity, elastically retracts, and holds up, so to speak, the fluid. The anatomical relations of the lung help us to understand how it is that Damoiseau's curve may be assumed—a phenomenon inexplicable as the direct result of fluid *pressure*. (2.) As the fluid increases, the elastic recoil of the lung goes on its way until its elasticity is exhausted. Thenceforward, and not until then, can we rightly speak of a positive mechanical pressure of the effused fluid producing true compression of the lung, which is ultimately reduced to an airless cake, lying in the vertebral groove. This positive pressure may amount to 30 mm. of Hg. or more. (3.) The elastic tension of the sound lung will be increased, and an aspiratory action exerted on the opposite side, because the normal balance of opposing forces is disturbed.

As regards the diaphragm, it is, at first, not depressed, but, on the contrary, in many cases it is elevated, especially on the left side, as can often be made out in children. Bulging below the ribs is a late sign of pleural effusion. On the right side we have to allow for the weight of the liver, added to the weight of the super-incumbent fluid. If in a case of right-sided pleural effusion the liver is undoubtedly depressed we know that intra-pleural pressure is positive, and the amount of exudation is, therefore, great. (4.) Displacement of the heart, which is not always so great as sometimes thought, is dependent upon two factors—(a.) The quantity of fluid effused. (b.) The degree of elasticity in the *sound* lung.

Since two-thirds of the heart lie to the left of the middle line a moderate amount of fluid in the left pleura may be attended by a notable displacement of the heart to the right. This displacement is mainly due to the greater *drag* of the larger amount of lung tissue between the heart and the right

side and *not* to the direct pressure of the left pleural fluid as is so often supposed. Torsion of the aorta or inferior vena cava has not been demonstrated.

Dr. S. West determined the pleural pressure in twenty-seven cases of serous effusion, and found that the pressures varied greatly and irregularly, and that there was no definite relation between the degree of effusion and the amount of pressure. Even with a large effusion there may ultimately be a negative pressure. This is an important fact in relation to operative measures.

In ten cases of empyema Dr. West found that in all of them the pleural pressure was considerably increased and that the respiratory oscillation was practically absent. Sudden death is more to be feared with large effusions on the right side.

Time forbids me from discussing this deeply interesting question of sudden death, as well as some other topics such as pulsating empyema.

ART. VII.—*The Surgical Treatment of Empyema.** By Sir THORNLEY STOKER, M.D., F.R.C.S.I.; President of the Royal Academy of Medicine in Ireland; Surgeon to the Richmond Hospital and to Swift's Hospital for Lunatics.

I HAVE to thank the officers of the Medical Section for the honour they have done me in asking me to present to the Academy my views on the surgical treatment of empyema. As I may assume that I have been asked because, among any other reasons, I have a long and large experience, I think I shall do best by placing that experience at the disposal of my colleagues for their help or criticism. I shall not attempt, even did the time at my disposal allow, to discuss different views and various procedures, except in so far as an occasional reference may be necessary in order to elucidate a point or give weight to a decision, but content myself with speaking

* Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, January 19, 1906. [For the discussion on this paper see page 222.]

of what is best in practice, and giving my reasons why I have found it so.

As regards the diagnosis of empyema, the matter which most concerns the surgeon is its location and area. Exploration of the pleura with the finger in the course of many thoracotomies has shown me that an encysted empyema is more common than has generally been held, and that its area is difficult or impossible to determine without such exploration. Stethoscopic examination often fails to draw an exact line between the dulness over an encysted empyema and the dulness due to pressure on the surrounding lung. Hence it is that so often a hypodermic needle fails to find pus at its first or second puncture; it has been pushed into a dull area surrounding the empyema, due to pressure or inflammation. The practical outcome of this is that a large hypodermic or small aspirating needle should be used to determine the purulent nature of the fluid to be dealt with and the region in which to attack it. As for the method of attack, I may dispense with much remark on the operation of aspiration. I think it is dead, or should be so. The essence of any form of pleural evacuation is not merely that it may empty the cavity, but that it should provide free drainage. Can anyone who has ever seen the masses of semi-solid lymph which are discharged through the incision of a sufficient thoracotomy contend for a moment that they could be removed by aspiration or extruded through a small tube? Aspirations are bad treatment, and, inasmuch as they do not provide drainage or give exit to lymph, are dangerous as well as insufficient.

As regards the point at which operation by incision should be performed, no exact rule can be laid down, as the surgeon must be guided by various conditions in different cases. But, speaking generally, the sixth or seventh space in front of the posterior fold of the axilla is the point of election. Here the anterior edge of the latissimus dorsi affords a good guide, and the only tissue between the superficial structures and the wall of the thorax is the serratus magnus, the fibres of which can be separated without incision, and retracted during

the later stage of the operation. By treating the serratus thus, a contractile collar is formed round the drain tubes, and the entrance and exit of air is limited as far as possible. The only general propositions I am prepared to state in addition to the above, as to the site of incision, are two:—First, that the opening should be as far back as is consistent with the tube not being occluded by pressure when the patient lies supine; second, that it should not be too low down, as, if it be, the ascent of the cupola of the diaphragm, which is one of the chief provisions of nature for the diminution of the size of the pleural cavity, may occlude the tube or even cover the drain opening, and thus impair its function.

The operation of thoracotomy for drainage should, as a routine practice to which but few exceptions are permitted, be effected by removing a portion of a rib, and not by the intercostal method. The space between the ribs does not permit the introduction of a finger for exploration, and is so narrow that the drain tubes, if of sufficient size, are pinched and occluded between the ribs. The operation, also, can be much more cleanly completed by the periosteal route, as afterwards described, and is practically free from any risk of hæmorrhage.

I operate in the following manner:—The patient being anæsthetised, by chloroform for choice, is placed semi-supine on the sound side, or if this be not safe, owing to difficulty of breathing, on his back, with the seat of operation projecting over the edge of the table. An incision about three or three and a half inches long is made over the centre of the selected rib and paralleled to its axis. This cut is carried down to the substance of the serratus magnus; the fibres of that muscle are then separated by a director or other half-blunt instrument, and held apart by retractors, so as to expose the rib. The periosteum is then incised and separated from the rib by an elevator, great care being taken while working round the deep surface of the bone not to perforate the pleura. This latter is an important point, as if you leave the pleura uninjured until the piece of rib has been removed, you can then tear the necessary opening in it with any half-blunt instrument, such

as a Watson-Cheyne dissector or a director, your hand working under cover of a towel spread over it, so as to catch the pus and prevent the mess which is made by its usual violent expulsion. I know no instrument so good for separating the periosteum of a rib without opening the pleura as the curved end of Fergusson's director. In most of these cases the pleural covering of the rib is very much thickened, and its elevation with the periosteum is easily effected without perforation. About one and a half inches of the rib should then be removed, either with a special shears or an ordinary bone forceps. Some surgeons prefer a saw, but its use prolongs the operation and adds the risk and dirt of a premature opening of the cavity. I have seen no ill effects follow the bruising of a rib from the use of a cutting forceps. In cases where the rib is very large, or in old people, in whom it is very hard, it may be well at times to notch it with a key-saw preparatory to using the shears. The pleura is then opened in the way indicated, the pus and lymph allowed to discharge, and the cavity thoroughly explored by the finger. I do not hold with the practice of making two drain openings, but always put in two large rubber tubes fastened together by a safety-pin, which also serves to prevent the tubes escaping into the thorax. I have tried all sorts of drain tubes for the pleura, but found none so good as ordinary rubber ones of large size, say No. 14 or 15.

The tubes should not be perforated, except where they lie within the thorax, as if the parts passing through the thoracic wall have openings they will facilitate extravasation of pus into the soft tissues. They should be long enough to enter the cavity for three or four inches, as they can be gradually shortened as the sac contracts. Flanged tubes are not to be recommended, as the pus lies between the flange and the skin, and causes excoriation.

The object of having two tubes side by side is not only to promote more free drainage, but also to facilitate the washing of the pleural sac should it become necessary. Irrigation of the pleura, as a routine, is a practice best avoided. It is often dangerous, and has been known to cause fatal

collapse or convulsions. It is generally only required where fœtor exists or where discharge does not diminish satisfactorily. The choice of the antiseptic, if any, to be used with the irrigating fluid is one to which every surgeon will apply his own experience; personally I incline to a very dilute solution of mercuric potassium iodide.

Thoracotomy by this method can usually be very rapidly performed, occupying only a few minutes. This is a matter of importance, because persons subjected to it are often in a state which renders anæsthesia dangerous and speed most desirable.

There is no doubt that most cases of empyema get well if they are drained efficiently and in time, and that deaths or operations subsequent to drainage are results of drainage being too long delayed.

We have to consider what courses may be adopted to help the expansion of the lung in a case where drainage by itself seems to fail before we resort to the final treatment of thoracoplasty. The main help to the physician where thoracotomy is not effectual is the application of atmospheric pressure of either the negative or positive kind. Of the negative, or that which seeks to help the expansion of the lung by diminishing the pressure of the external air which applies itself through the opening made in the chest wall, I can say nothing favourable. The human machine is not only very complex, but one working under vital conditions quite unlike those which surround and govern apparatus in a laboratory, and until we can render a patient immobile, and place him relatively in the circumstances of a physical machine, I see no hope of bringing a suction apparatus into play. I have seen all sorts of endeavours, in my time, to deal with the living organism on elaborate mechanical principles, but seldom with much effect.

By positive pressure more may be effected. The plan of using condensed air in the lungs has been practically abandoned, as it was found inapplicable in most cases, and dangerous in some. But other positive methods in the form of forced respiratory efforts are exceeding useful. The most ordinary and, perhaps, best forms of respiratory gymnastics

are two. One consists of forcible inspiration and expiration used systematically and for stated and increasing periods; the other of James's plan of blowing water from one gallon bottle to another through tubes arranged for the purpose. This device is often most efficacious in assisting the expansion of a compressed lung, and obviating the necessity for Estlander's operation.

But the time may come when Estlander's operation of thoracoplasty must be undertaken, and better too soon than too late. There are many cases where, commencing with a drainage operation, conditions are found which demand that the proceeding should there and then be completed by Estlander's method. If when the pleural cavity be explored by the finger the lung be found compressed into a firm mass not approaching the wall of the chest, and if the condition and history show that this state of affairs has existed for some time, it is better not merely to drain the pleura, but also at once to diminish the size of the costal boundary by the removal of portions of several ribs, so as to allow it to approach the compressed lung, and thus do its share in lessening the cavity. It should be remembered that no case of this kind is too bad for surgical treatment unless the patient is dying or too far gone to bear the immediate effects of the operation. There are several factors which lend themselves to the closure of an apparently irremediable cavity. One is the yielding towards the diseased side of the contents of the middle mediastinum. The second is the rising of the cupola of the diaphragm. The third is the falling in of the chest wall when Estlander's operation has been done. The fourth is the expansion of the lung. The first three are so potent that they may effect the closure of the pleural cavity even when, owing to the failure of the lung to expand, the fourth does not come into play.

As regards Estlander's operation, I hold some strong views as to its method of performance. It is, perhaps, most generally recommended to expose the ribs, of which it is proposed to remove portions, by raising an angular or U-shaped flap of soft tissues. This makes a raw surface of large extent, and

adds to the severity of the operation; the more so as the wound may be delayed in healing by pleural pus contaminating it. I remove the ribs by incisions parallel to their axes. This at once avoids a large wound area, and interferes less with vessels and nerves than a U-shaped incision. The first incision is made in the same way as for thoracotomy, the periosteum resected, and as many inches of the rib as may be necessary removed. If the soft tissues be loosened with scissors, and retracted up, and then down, the rib above and that below can be resected through the same superficial incision. In this way one skin cut will serve for three ribs. If it then be necessary to remove portions of two or three more ribs, a second incision will suffice. One of the important reasons for exploration of the empyema when opening it for drainage, is that it gives information as to which, and how many, ribs require operation if thoracoplasty should become necessary. Supposing no such information has been available, it is well to incise the periosteum and pleura when the portion of the first rib operated on has been removed, and by introducing the finger find how far you must carry your operation.

It is usually recommended to remove the periosteum when the ribs have been resected, but this adds much to the bleeding and length of the operation, and increases its danger. Besides, it is quite unnecessary, as I have never seen any subsequent trouble or failure in effect due to the retained periosteum.

Thoracoplasty has been described as a dangerous and bloody operation, and so it may be when performed in a certain way. But if U-shaped incisions be avoided, and one or two straight ones used, and if they be made over ribs and not over intercostal spaces; if the periosteum be not excised, and if parts of too many ribs be not removed, or too great a length of them, the bogey of danger will disappear. As for the number of ribs to be operated on, no general rule can be made; we must be governed by the general circumstances of the case. It is seldom necessary to operate on more than three or four, and it should be remembered that the removal of a moderate number will be followed by an hour-

glass-shaped contraction of the side of the chest, which will produce enough diminution without that general falling in which can result only when a larger number have been subjected to operation.

Finally, in connection with this treatment, let no surgeon despair of a good result in even the most unfavourable cases. The lung often begins to expand after a very long time and when, apparently, in a desperate condition. I have over and over again been astonished at the good recovery which has taken place when hope had almost been abandoned.

Having said so much of the past and present position of the surgical treatment of empyema, may I pause for a moment to make a forecast of its future. He who runs may read to-day that we are on the eve of a development of the treatment of this and a multitude of allied conditions which will lend itself to the assistance of surgery, and help, or in many instances obviate, operative measures. The studies of the opsonic power of the blood and of the use of bacterial vaccines, which is being so profoundly studied by Wright and others, are passing through the regions of promise and approaching the country of performance. I believe that we shall soon have to aid us means which will revolutionise surgery. Up to the present the effects of the vaccines have chiefly been directed to the study of tubercle; but the light is spreading among pathological workers, and no man can say where it may go. It is finding its way in many directions. For instance, an excellent communication was made to the Section of Dental Surgery at the last meeting of the British Medical Association by Mr. K. W. Goadby on the treatment of alveolar osteitis by vaccines. He shadows a future treatment of nasal and antral suppuration which will probably revolutionise our views on such conditions. However, I cannot delay to say more on a fascinating subject which at present is in the hands of investigators, but which I believe will soon be ripe for practical use.

Finally, I may epitomise as follows the points of my communication, about which I should like to hear opinions.

1. That an empyema cannot be drained too early.

2. That best way to drain is by removing a portion of a rib.
3. That thoracoplasty should not be delayed too long.
4. That it should be effected by one or more incisions parallel to the ribs.
5. That removal of the periosteum need not be practised.
6. That few cases should be allowed to die, even in the latest stages, without an attempt to relieve them by operation.

ART. VIII.—*The Bacteriology of Empyema.*^a By H. C. EARL,
M.D. Univ. Dubl., F.R.C.P.I.

IN the time at my disposal it would be impossible to treat at all fully of the pathology of empyema, and I have thought it best, therefore, to try and lay before you a short account of the bacteriology of this condition only. Even as regards the bacteriology, I shall chiefly deal with certain points which appear to be of clinical interest.

It is not possible to deal with the bacterial ætiology of purulent effusions separately from that of serous and sero-fibrinous effusions; for the micro-organism that in one case causes a purulent effusion, in another causes a serous or sero-fibrinous effusion. Moreover, a serous effusion may become purulent, and that not on account of anything introduced into the pleural cavity by the first puncture, but from the further action of the microbe that it already contains, and in some cases, where the effusion is multilocular, different loculi may contain fluids of different characters. Thus, any consideration of the micro-organisms causing purulent effusions must include more or less allusion to non-purulent effusions. Of the micro-organisms found in pleural fluids, some always cause purulent effusion, and others either serous or purulent. Of the latter group, some cause serous effusions more frequently than purulent, and others purulent more frequently than serous. Thus, Wassermann states that of 12 effusions caused

^a Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, January 19, 1906. [For the discussion on this paper see page 222.]

by the Friedländer bacillus, all were purulent; of 14 due to the typhoid bacillus, 7 were serous, 6 purulent, and one hæmorrhagic; of 35 due to streptococci, only one remained serous; while of 145 due to pneumococci, only 36 were purulent.

In taking the fluid for examination strict asepsis is necessary, and it is important that the fluid obtained should not be mixed with any antiseptic, as in its examination it is necessary not only to make microscopic preparations, but often also to make cultures, and even occasionally to inoculate animals. The information obtained from stained films is sometimes sufficient, but cultures must often be made to identify the organisms present. Cultural examination should, however, supplement and not supplant microscopic examination, for there may be present organisms that have lost their power of growing while retaining their microscopic characters; or, as is the case in putrid effusions, organisms may be present which would be missed by the usual culture methods, as they only grow under anaerobic conditions. Effusions are sometimes sterile, and importance has been attached to the condition of sterility as being strongly suggestive, at least, of a tuberculous origin.

Now, a very careful examination must be made before an effusion is declared to be sterile, for, on account of their fewness, it may be impossible to find micro-organisms in microscopic preparations, while they may be found in cultures. Thus, in a case where I failed to find any micro-organism in stained films, a large loop of the pus yielded in a plate cultivation eight colonies of *Staphylococcus albus*. If no organism be found, it must not, of course, be assumed that the effusion was originally sterile, for where a series of examinations have been made it has been found that at an early stage micro-organisms could be demonstrated by the microscope and by culture, while later no micro-organisms grew, but they could still be found microscopically, though in a morphologically altered condition; and, later still, none could be found, either by culture or by microscopic examination. That is to say, that an effusion caused by a micro-organism may become

sterile, and this is the case particularly, it is said, in effusions—serous or purulent—due to the typhoid bacillus.

Empyema is caused, as far as direct causation goes, by one or more of the following organisms:—Pneumococcus, Streptococcus pyogenes, tubercle bacillus, staphylococcus, typhoid bacillus, and possibly *Bacillus coli*, Friedländer's bacillus, and, in the case of putrid effusion, by anaerobic organisms.

As to their relative frequency, statistics show that 75 per cent. of empyemas are caused by pneumococci or streptococci. Netter found in 110 cases in patients of all ages—

Streptococci alone in	-	44 per cent.
Strepto- and pneumococci in		2.8 per cent.
Pneumococci alone in	-	26.7 per cent.
Staphylococci in	-	1.8 per cent.
Tubercular and putrid	-	24.7 per cent.

Hartwell found in 52 cases—

Pneumococci in	-	50 per cent.
Streptococci in	-	33 per cent.
Staphylococci in	-	8 per cent.
Tubercular in	-	4 per cent.

In another series there were found rather higher numbers for strepto- and pneumococci, with Friedländer's bacillus in 2 per cent., and 12 per cent. were tubercular.

When the cases occurring in adults and those occurring in children are taken separately, it is found that the numbers due to streptococci and pneumococci show remarkable differences. Thus, in adults Netter found—

53 per cent. due to streptococci and

17 per cent. due to pneumococci,

while in children he found

53.6 per cent. due to pneumococci and

17.6 per cent. due to streptococci.

In another series of cases among children he found 65 per cent. due to pneumococci, while Koplik found 60 per cent. due to pneumococci, and Bythell found pneumococci alone or with other organisms in 90 per cent. of his cases, but Bythell's cases were observed in the Manchester Children's Hospital at a time when pneumonia was very prevalent in that district.

The statistics of other observers agree in the main with those of Netter.

Pneumococcal empyema generally comes on in connection with acute pneumonia, often a few days after the crisis, or in connection with broncho-pneumonia, but occasionally it appears to occur as an independent affection. It is not by any means certain, however, that it does occur independently of lung affection, and it must be borne in mind that the existence of broncho-pneumonia, in which pneumococcus often occurs, is not always easy to detect. It has been attempted, from an examination of the pus, to form some idea of the probable course of the disease. Thus, the view has been put forward that the shape of the cocci and the length of the chains they form has some value in prognosis, but this is entirely contradicted by the observations of most writers.

Bythell considers that the presence of a small number of cocci which stain feebly, grow scantily, and whose cultures die out rapidly, is a fairly reliable indication of a favourable course of the disease.

The presence of a large number of micro-organisms less frequently indicates an unfavourable course, especially if it be accompanied by well marked phagocytosis. Indeed, according to some observers, the amount of phagocytosis is the most reliable guide to prognosis; those cases in which phagocytosis is badly marked being most severe.

Netter considers that well marked phagocytosis is merely a sign of the presence of many dead and weakened forms of the coccus, and no evidence of the activity of the leucocytes against the microbes. But it is not necessary to discuss this question, for even if Netter is right the value of the amount of phagocytosis present as a guide to prognosis is not diminished.

Streptococcal empyema is generally secondary to pneumonia, broncho-pneumonia, gangrene or abscess of the lung. Occasionally it occurs as an extension from a suppurative process in the abdomen, and is not very infrequently met with as part of a general pyæmic process.

Now, the view has been held for the past fifteen years that

the prognosis is very much less favourable in streptococcal cases than it is in pneumococcal cases. With regard to the latter, cases are recorded that got well without any operative interference, or by simple removal of the fluid without draining, and when such cases are subjected to radical operation they are considered to give much more favourable results than streptococcal cases do. My own experience, as far as I have been able to follow the cases from which I have examined material, is in accordance with this view, which is dissented from by only a few writers.

This more favourable course of pneumococcal cases is believed to be due to a tendency of pneumococci to lose their virulence, but the more unfavourable course of streptococcal cases must also be influenced by the more serious conditions in the lung and elsewhere which are often precursors of such cases. For it is easy to see that an empyema coming on a few days after the crisis of a pneumonia, and due to the pneumococcus, is much more likely to have a favourable result than is an empyema due to streptococci, and occurring as part of a pyæmia, or secondary to abscess of the lung, or to a purulent affection in the abdomen, apart altogether from the variety of organism present.

Both streptococci and pneumococci are generally in pure culture in the pus, but they may occur as mixed infections, in which case the prognosis is determined by the more virulent organism present.

Next to the streptococcal and pneumococcal empyemas in frequency are those of tubercular origin, which form about 12 per cent. of all empyemas. They are not so common as serous effusions of the same origin, and the tubercle bacillus, though found more commonly in the purulent than in the serous effusions, is, however, present only in a small percentage of cases.

Of 13 cases of mixed serous and purulent cases recorded by Jakowsky, the tubercle bacillus was found twice in one serous, and one purulent case. Seven of these 13 were sterile, 6 serous and one purulent. In the other 6 cases streptococcus was found in 3, staphylococci were found in 2, and pneumo-

and streptococci together in one. These statistics are fairly representative. Not only is it impossible in most cases to find the tubercle bacillus, but inoculations often fail, even in undoubtedly tubercular cases. As neither the absence of the tubercle bacillus nor the presence of other organisms at all disproves a tubercular origin of an effusion, it is necessary to seek other aids to diagnosis. The examination of the sputum is rarely of assistance, as if there is sputum at all it generally contains no tubercle bacilli, even if there is distinct tubercular disease of the lungs. This fact, which I have several times confirmed in cases which subsequently at *post-mortem* examination presented distinct tuberculosis of the lung, and in some of which the pleural fluid contained tubercle bacilli, is apparently to be explained by the fixation of the affected side, so that the sputum comes from the bronchi or from the healthy lung.

Cytological examination has been of use in deciding the nature of effusions of a serous character, but is, of course, not of use in purulent cases. Great stress has been laid by Levy and others on the sterility of effusions as pointing to a tubercular origin, and no doubt this is of some importance, but it certainly has not the importance that was at first attached to it, for, as I have already pointed out, effusion due to other organisms than the tubercle bacillus may and do become sterile. The certain diagnosis of the nature of the disease in many cases of tubercular origin still remains, and is likely to remain, difficult.

Of the other organisms found in empyemas, staphylococci are occasionally found alone, and oftener as a mixed infection in tubercular cases. Friedländer's bacillus occurs rarely—in 2 per cent. or less of all empyemas. The cases are sometimes consecutive to broncho-pneumonia. The organism is almost always present in pure culture, but it has once been found with *Staphylococcus albus* and *aureus* in a case of tubercular nature. The effusion is always purulent, and the prognosis is said to be good.

Micrococcus tetragenus has been found in empyema, but always associated with other organisms. The gonococcus

has also been described in one empyema, but this is very doubtful.

Pleural exudations containing the typhoid bacillus are rare. Remlinger, in 1900, published details of 31 cases collected from different sources, including 8 cases of his own which occurred in connection with typhoid fever or contained the typhoid bacillus. Of these, 14 were purulent, the remainder being serous or hæmorrhagic. In one case there was a bilateral effusion, serous on the right side, purulent on the left. Nearly all these cases contained the typhoid bacillus, generally in pure culture, sometimes with one or other of the cocci found in suppurative processes; 2 only contain staphylococci without typhoid bacilli. His own 8 cases occurred among 1,055 typhoid patients treated in the Belvedere Hospital at Tunis, 7 of these contained typhoid bacillus, and one *Staphylococcus aureus*. Since Remlinger's paper several other cases have been recorded.

He divides the cases into 4 classes—

1st. Those occurring at the very beginning of typhoid fever.

2nd. Those occurring at a later date, sometimes during convalescence.

3rd. Cases where the infection of the pleura by typhoid bacillus is secondary to other disease.

4th. Cases of empyema occurring during typhoid which contain not typhoid bacilli, but other organisms.

All the cases in the 1st class were serous, and contained typhoid bacillus, and all recovered. To the 2nd class 19 of the 31 cases belonged. Of these, 6 remained serous and one remained hæmorrhagic; one serous became purulent, and 2 hæmorrhagic became purulent; 8 were purulent when recognised, and one which had bilateral effusion was serous on one side and purulent on the other. Of these cases 5 died, all the deaths occurring in purulent cases. One of the purulent cases recovered with simple removal of the fluid. All these cases contained typhoid bacilli, but there was a great tendency for the organism to disappear during the disease. This occurred in 8 cases of the 19, in 3 purulent and 5 serous cases. The great majority of cases of these 1st and 2nd classes

occurred on the left side. The 3rd class of cases described by Remlinger consists of 2 cases of empyema, both in tuberculous subjects; one of these contained typhoid bacilli alone, and the other tubercle bacilli and typhoid bacilli. Neither of these had any of the usual typhoid lesions at *post-mortem*. I do not know of any other case of this sort, but, of course, the pus from an empyema occurring in a subject known to be tubercular is not often subjected to careful examination.

Bacillus coli has been found in a few empyemas once, in pure culture, following on a severe colitis; in other cases with pneumococci or other organism.

In conclusion, I must refer very briefly to putrid empyemas. They occur in connection with a primary or secondary gangrenous affection of the lung or in connection with a suppuration of a putrid character in the abdomen, and affect the pleura either directly by rupture or by extension from the peritoneum. Sometimes they are embolic in origin. The results of bacteriological examinations have been published in comparatively few cases, the most important paper on the subject being that by Guillemot, Halle and Rist in 1904. The pus from putrid cases always contains anaerobic organisms, frequently alone, sometimes with the cocci found generally in suppurative processes. There are generally several varieties of anaerobic organism present, but occasionally only one occurs. The organism most frequently found is an anaerobic streptococcus, which is non-pathogenic, and which is believed to be identical with an organism that occurs in the saliva. *Bacillus coli* was sometimes found in these cases.

The results obtained by the examination of putrid cases have not revealed so far anything of much clinical interest.

ART. IX.—*Empyema or Hypophrenic Abscess?** By SIR JOHN MOORE, M.D., D.P.H., Dubl.; D.Sc. Oxon. (*Hon. Causâ*); F.R.C.P.I.; Physician to the Meath Hospital and County Dublin Infirmary; Professor of Practice of Medicine in the Royal College of Surgeons in Ireland.

THE short contribution to this discussion which I propose to make consists in notes of two cases illustrative of the difficulties which beset a differential diagnosis of empyema, or pyothorax, and hypophrenic abscess.

CASE I.—A married woman, aged thirty years, was admitted to the Meath Hospital under my care from Ranelagh Road on May 8, 1894, with a history of three weeks' illness. She had been married for fourteen years, but had never become pregnant. Menstruation had been quite regular, but was often excessive, although there was no metrorrhagia. She had been losing flesh for a year, and had also been obliged to get up at night to pass water. Six months before admission she had suffered from an attack of what was called "influenza." Although she had taken ill three weeks before admission, she did not take to bed until a week later. Her complaint was of great shortness of breath and of stabbing pain in her back and the right side of the chest. The bowels were confined, so on Sunday, May 6 (two days before admission), she took castor oil, which was followed by an excessive motion, quite black in colour.

On the evening of her admission the axillary temperature was 99.2°, pulse 106, respirations 28. The physical signs pointed to a large right empyema. Next evening temperature rose to 100.2°, but it fell subsequently to 96.4° on the morning of May 12. Her condition at that time was critical, and pulse and breathing were becoming more and more rapid. A free incision was, therefore, made in the ninth intercostal space in the scapular line, and one hundred and seventy (170) ounces of most offensive pus were drawn off. The pus was deeply stained with bile, so that it was believed that the liver was engaged as well as the pleura. The temperature rose on the evening of the operation to 100.8°.

* Read before the Section of Medicine in the Royal Academy of Medicine in Ireland on Friday, January 19, 1906. [For the discussion on this paper see page 222.]

A temporary intermission of fever followed, but the thermometer rose to 103.2° on the evening of May 16, a septic diarrhoea set in, and the patient sank from exhaustion on the 19th.

The autopsy was made with great care by Mr. William Taylor, then House Surgeon to the Meath Hospital, now my colleague on the Hospital Staff. To him I am indebted for the following notes:—

“On opening the abdomen the left lobe of the liver was found to be about four times its normal size, to extend quite over to the left hypochondriac region, and to press up the lung on that side. The right lobe of the liver was nothing but an abscess sac. The gall bladder was unaffected. The neighbourhood of the pylorus showed thickening, the result of old adhesive inflammation round a gastric ulcer. There was a small opening through the diaphragm, which was adherent posteriorly as high as the fifth rib, and laterally as high as the seventh rib. There was also a moderate quantity of fluid in the right pleural cavity—about forty ounces in all.

“The right lung was greatly compressed and completely collapsed, save a small portion of the upper lobe.”

In this case a diagnosis of empyema was made, whereas the suppuration was altogether below the diaphragm, constituting a hypophrenic abscess and involving the liver also. The starting point of all the mischief was probably a perforating gastric ulcer, in connection with which adhesive inflammation had occurred.

CASE II.—A farmer, aged fifty-two years, was sent to me in October, 1905, for admission to the Meath Hospital by Dr. George Peirce Ridley, J.P., Surgeon to the King's County Infirmary; and Dr. John M'Michael, of Tullamore. They considered that the patient was probably the subject of Addison's disease from the pigmentation of the tongue which was present and from the dark colour of the skin. The man was admitted on October 26, 1905, and died on November 7.

The patient complained of severe pain in his stomach shooting towards the right side and upwards into his head, making him

feel dizzy. He said that the act of swallowing food was difficult, and accompanied by a sharp pain in his chest. These symptoms dated back four months to a time when he noticed the whites of his eyes and his skin becoming yellowish.

Foul gases were frequently belched up from his stomach, the throat felt sore and swollen, and he perspired freely. Sleep became broken. Obstinate constipation compelled him to take laxatives at frequent intervals. He lived on tea and porridge. About a week before admission cough began to trouble him, coming on in spasms or paroxysms. Whenever he tried to lie on his back or left side he was seized with intense pains. The urine became scanty, but he was frequently disturbed at night by an urgent desire to pass water. The specific gravity of the urine was 1015, but neither albumen nor sugar was present.

Of medium height, the patient weighed 9st. 6lbs. on admission. He said he had lost two stone within the previous two months, and was becoming terribly weak.

A faint blowing systolic murmur was heard at the apex of the heart, whence it was carried towards the back and left axilla (mitral leakage).

The abdomen was slightly full. Its wall was rigid and resisting on the right side. Intense tenderness on pressure was found over the hepatic and gastric regions. The liver was not appreciably enlarged, but appeared to be displaced downwards. Temperature was generally subnormal, the ratio of pulse to respiration was three to one. The pain, rapid wasting, progressive weakness, difficulty of swallowing, eructations of foul gas, and spasmodic cough suggested malignant disease of the œsophagus—a diagnosis which forbade the use of an œsophageal bougie, or of a stomach tube, for examination of the stomach contents. An extensive area of dulness on percussion existed on the right side of the thorax. The dulness was absolute over the base, relative at a higher level. Vocal fremitus was absent below, present—but not to a normal degree—above. These signs suggested the presence of a considerable collection of fluid in the right pleura. So I made an exploration with a sterilised hypodermic syringe and drew off a clear, straw-coloured serum.

The condition of the patient now grew rapidly worse, and on November 4, 1905, his state was alarming. On that day I noted

that the right side moved only slightly with respiration. The lower intercostal spaces on the same side were effaced. There was distinct fulness of the side. On pressure, some pitting was observed. From the fifth rib downwards there was absolute dulness on percussion. Over the left lung loud compensatory breathing was heard. From these signs I felt tolerably sure we had to deal with a hypophrenic abscess secondary to the œsophageal disease, and so I was not surprised when I drew off a syringeful of stinking pus in the seventh intercostal space quite in front.

Mr. Taylor now took charge of the case, and incised a portion of the right tenth rib in a line with the inferior angle of the scapula, after which he evacuated an enormous collection of very foul-smelling pus, such as we would expect in an empyema arising from gangrene of the lung. A large empyema drainage tube was introduced into the cavity whence the pus had been evacuated, but the condition of the patient did not improve. He sank quickly, and died three days later.

The *post-mortem* showed that there was an extensive cancerous condition of the œsophagus, which had ulcerated through into the posterior mediastinum, setting up a suppurative mediastinitis. From this the inflammation spread to the pleura, giving rise at first to a serous effusion upon which the infection quickly became engrafted, converting it into the purulent condition found at operation—the whole right pleural cavity had been filled with pus. The examination of the abdomen revealed nothing abnormal.

In a clinical lecture on Subdiaphragmatic Abscess, delivered at the Hospital for Consumption and Diseases of the Chest, Brompton, and published in the third volume of the fourth series of "International Clinics," 1894, Mr. Rickman J. Godlee observes that abscesses beneath the diaphragm are very difficult to differentiate from, and are very often combined with, diseases of the chest proper. In his lecture, Mr. Godlee describes examples of subdiaphragmatic abscess, arising not only from the liver, stomach, and the spleen, but from inflammation about the cæcum and the kidney, from rupture of the duodenum, and from caries of the ribs, and

from Pott's disease of the vertebræ. He mentions the case of a lady who was sent to him on account of what was supposed to be an empyema on the right side. There was dulness in front to the level of the second rib, but the upper part of the abdomen was occupied by a large rounded swelling, obviously connected with the liver. On enlarging a wound through which a collection of matter had been previously evacuated, Mr. Godlee found that the cavity was all below the diaphragm, and consisted of a huge suppurating hydatid cyst of the liver.

Again, he describes the case of a girl, aged twenty, who was suddenly seized with symptoms of the rupture of some hollow abdominal viscus. From this she rallied, and subsequently presented physical signs which closely simulated those of fluid in the left pleura. He was told it was an empyema, and that stinking pus had been drawn off through a canula inserted below the ninth rib in the scapular line. He repeated the exploration, and was astonished that perfectly clear and odourless serum escaped. Subsequent inquiry into the case convinced Mr. Godlee that it was one of ruptured ulcer of the stomach, and that the matter was situated between this viscus and the diaphragm.

In a third case, a girl, aged sixteen, was supposed to have empyema—a needle was inserted, but no matter was found in the pleura. On January 6, 1890, a piece of the left eighth rib was removed about the posterior axillary line, and a cavity was opened which contained some ounces of very foul matter. The patient bore the operation well, but sank and died on the evening of the following day. At the time of the operation the matter was supposed to be in the pleura, but at the *post-mortem* it proved to be beneath the diaphragm.

Mr. Godlee reminds us that a subdiaphragmatic abscess may be accompanied by the presence of fluid in the pleura, resulting (it may be) from "sympathetic" inflammation, or from the perforation of the diaphragm by the abscess; or the same cause may give rise to the effusion of fluid in both situations.

He gives cases also in illustration of the difficulty of estimating the relation of an abscess to the diaphragm when suppuration follows caries, or necrosis of the lower ribs or rib cartilages, or of one of the lower dorsal vertebræ. It was such a case that Dr. Walter Smith submitted to this Section on December 13, 1889. His paper was published in the eighth volume of the Transactions of the Royal Academy of Medicine in Ireland, page 19 (1890).

ART. X.—*The Surgical Treatment of Empyema. By SIR ARTHUR CHANCE, President of the Royal College of Surgeons in Ireland; Surgeon to the Mater Misericordiæ Hospital, Dublin.**

THE policy of surgeons with regard to empyema might be written on a visiting card—early and efficient drainage, expansion of the lung, and possibly removal of the thickened pleura of the chest wall by operative means. But in putting these simple principles into effect we are confronted with the difficulty that arises from the widely different varieties of the disease. Empyema may be associated with pneumonia, with tubercle, with injury, with the introduction of septic organisms, or with abscess formation in neighbouring viscera, as the liver. It may be unilateral or bilateral; there may be one or more cavities. For all these varieties different methods of treatment are required, and within the limits of the time allotted to me it is quite impossible to do more than glance at the subject. At the outset I may say that in few conditions is the co-operation of the physician more necessary, not only as regards diagnosis, but in the post-operative treatment. I like to take care of the cavity and the chest wall, and leave the lung and the rest of the patient to the physician.

With regard to drainage, for an ordinary meta-pneumonic empyema my practice briefly is:—Operate as soon as the presence of pus is certain. Use a general, rather than a

* An epitome of remarks made at the meeting of the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, January 19, 1906. [For the discussion on this communication see page 222.]

local, anæsthetic. I generally adopt chloroform, with a little ether sprinkled on the mask.

■ The position of the incision depends, of course, on the boundaries of the cavity; but where possible I think that the balance of advantage is in favour of the eighth or ninth rib, just external to the line of the angle of the scapula. Drainage in either the recumbent or the upright position is more effective than if the usual mid-axillary position higher up is adopted.

I lay stress on the wisdom of making a short skin incision; two inches is usually sufficient. By moving the soft parts to and fro with retractors, quite a long portion of rib can be removed. A long incision, especially one needing sutures, creates unnecessary difficulty in after treatment. Portion of a rib should always be removed, and this is best done either by Giglis' saw or by an ordinary bone forceps. I deprecate the use of the clumsy rib shears, as they cause unnecessary detachment of the periosteum. The drainage tube should be very large, about an inch in diameter. It should almost fill the opening, and should not have a flange, which retains pus about the wound, but should be fixed in place by a brooch-shaped safety pin such as I show. I would give full credit to the inventor if only I could remember his name. The tube should be short—just into the cavity, and no more.

I have not used hydraulic drainage in empyema; but from my experience of that method in bladder cases I would not be disposed to adopt it for empyema except in bilateral cases.

In meta-pneumonic cases the prognosis is most favourable, if only drainage has been adopted early enough. In cases of tuberculosis of the pleura the prognosis is bad.

Finally, with regard to thorocoplasty, three types of operation have been adopted:—

1. Removal of the ribs over the whole area of the empyema so as to permit the chest wall to fall in towards the lung. My experience of this operation is unsatisfactory. The thickened parietal and visceral pleura is a great obstacle to the obliteration of the cavity.

2. *Schede's operation*.—Removal of the ribs, the intercostal structures and the parietal pleura : an operation the severity of which can, however, be somewhat diminished by doing only part of the cavity at a time.

3. Removal of the parietal and visceral layers of the pleura : an operation of exceptional severity and uncertainty.

There are certain difficulties common to all these operations.

The condition of the patient is one most unfavourable for the necessary constitutional strain. Resection of the upper part of the chest wall is always dangerous and sometimes impracticable. In many of these cases the local tubercular mischief cannot be completely removed.

To epitomise, I would say :—

1. Given *early* drainage and even moderate care in the after treatment, many cases of empyema will get well.

2. With pitifully few exceptions, tubercular empyema will not get well in spite of the most careful treatment.

3. For neglected empyemata of non-tubercular type Schede's operation, or some modification of it, offers a substantial hope of cure.

ART. XI.—*Remarks on the Treatment of Empyema.* By WILLIAM TAYLOR, M.B. Dubl. Univ., F.R.C.S.I. ; Surgeon to the Meath Hospital and County Dublin Infirmary, and Surgeon to Cork Street Fever Hospital, Dublin.

IN discussing the treatment of empyema one should do so from a bacteriological standpoint. From this point of view three principal forms of empyema must be recognised :— (1) Those due to the tubercle bacilli ; (2) those due to the pneumococci ; and, lastly, (3) those due to other forms of pyogenic bacteria, especially streptococci and staphylococci. It is not my intention to discuss the treatment of old-standing empyemata in which drainage has been tried and failed. With respect to the first, primary tubercular empyemata are rare. Most frequently one finds tuberculosis of some adjacent part, such as tuberculosis of the spine, ribs, or lung, or, perhaps, the condition in the pleura is but a manifestation

of a general tuberculosis. The prognosis of such cases is very far from favourable, and the treatment gives anything but encouraging results. From my own personal experience of such cases, I have come to the conclusion that the best procedure to adopt is that of withdrawal of the fluid slowly by means of the aspirator with the strictest aseptic precautions, after which a small quantity of sterilised glycerine and iodoform emulsion may be introduced. Cases in which free incision with or without resection of a portion of a rib, was employed invariably became infected sooner or later with other pyogenic organisms, and the patients then began to go rapidly down hill. In no case after free incision and drainage did the sinus heal up, and the patients were generally worse off in the long run than if they had been left with unopened empyemata, which are not infrequently sterile, because the secondary pyogenic infection invariably led to profuse discharge, lardaceous degeneration, and ultimately death. Probably the future will bring better results, when the treatment of these cases by the injection of tuberculin as regulated by the opsonic index, regularly taken, becomes more generally known and, perhaps, better appreciated.

From our present knowledge of this method of treatment, aspiration of the fluid, followed by the injection of tuberculin as regulated by the opsonic index, combined with good feeding and good hygienic surroundings, would appeal to me as the best course to pursue.

The form of empyema, however, which gives the best prognosis, and the treatment of which is attended with the happiest results, is that due to the pneumococcus. It is well known that by far the greater number of empyemata in young children owe their origin to the pneumococcus, an organism whose virulence and resistant power are comparatively slight. So favourably is empyema of this nature looked upon that some authorities have recommended a masterly inactivity, unless the empyema threatened to burst externally, or unless the collection increased to such an extent as to be a source of danger from pressure causing displacement

of the heart. Other authorities, while not agreeing with that course, have recommended the removal of as much of the fluid as could be withdrawn by means of the aspirator. With the first of these methods of treatment, which would perhaps be better termed want of treatment, few surgeons would be found, I think, to agree. The condition is simply a large abscess, and as such ought to be evacuated, and the sooner the better.

With respect to the second procedure—viz., aspiration—I cannot say it appeals to me as rational. Every surgeon who has had occasion to operate much for empyema in children knows that it is the rule in these cases to find enormous quantities of septic fibrin, either lining the parietal and visceral layers of the pleura or floating comparatively freely in the pus. Of course it would not be contended that such masses of fibrin would be removed by the aspirator. They are, therefore, left to become organised, impregnated with salts, and converted into calcareous masses, or in other cases to continue to keep up the trouble.

The line of treatment which seems to me the best, and which I have always pursued, is that which I adopt in case of an abscess in any other situation—viz., a free incision, the complete evacuation of the contents of the cavity, and provision for good drainage. It is urged by many that it is unnecessary in order to secure free drainage to have recourse to resection of portion of a rib, but I have always found it impossible to explore the cavity with the finger without resection of a portion of a rib.

By resecting a portion of a rib, which is my invariable custom in treating all cases of empyema other than those of tubercular origin, one can thoroughly explore the cavity, notice whether the lung is expanding, and remove all the masses of septic fibrin. If this is done, and free drainage provided, the cases progress rapidly to a satisfactory termination. Many such cases are quite well in from ten days to three weeks. The resection of a portion of a rib adds nothing to the risk of the operation, while it immensely facilitates drainage, and thus ensures more speedy convalescence.

The same remarks apply to the treatment of empyema of pneumococcal origin in adults, but as a rule recovery is not quite so rapid as in the case of children.

The prognosis of the third variety of empyema is not so favourable. This is only what one would expect considering the comparative virulence and resistance of the organisms producing it. The treatment of such cases must always consist in early and free incision, followed by free drainage, which, I am convinced, can be obtained only after the resection of a portion of a rib.

The earlier treatment is undertaken the better the prospects. There are occasionally in this class some forms of empyemata one meets which run to a rapidly fatal termination. One or two such it has been my lot to operate upon in patients the subjects of scarlatina, in Cork Street Fever Hospital.

There are only a couple of points I would mention in connection with the performance of the operation. If a general anæsthetic is not contraindicated I prefer chloroform, but if the patient's condition is serious I prefer doing the operation under local anæsthesia. This, as a rule, is generally sufficient for adults, but a general anæsthetic is better for children.

The space selected for incision in general empyema is along the 9th rib, just anterior to the inferior angle of the scapula, and about $1\frac{1}{2}$ to 2 inches of the 9th rib are excised. Before making the incision a hypodermic, or exploring needle, is passed into the pleural cavity to see whether pus is present at that point. Even after the portion of rib has been resected, a needle is generally passed through the point through which the incision is to be made into the pleura. The object of doing this is to avoid risk of passing the knife into an adherent lung, as on one occasion on passing the finger into the pleural cavity after the incision had been made in the ordinary way the lung was found to be adherent not more than one inch away from the incision. The moment the incision is made into the pleural cavity the finger is introduced so as to partially plug the opening and prevent a too rapid escape of pus, with consequent risk of syncope; further, one thus obtains a better estimate of the size of the cavity.

The question of irrigation is a vexed one. My own practice is to irrigate when the pus is foetid, and, indeed, in all cases other than those of pneumococcal origin ; but in doing so the precaution is adopted of having a free exit for the irrigating fluid, so that there will not be any positive pressure produced within the pleural cavity. The fluid is introduced very gently, and always at a temperature of 100° to 102° F. The fluid used is boiled salt solution, unless the pus is very foetid, when some weak potassium permanganate solution is used first, to be followed later by normal saline.

The treatment subsequent to operation requires little comment.

The patients are got up as soon as possible, and allowed to walk about.

Deep breathing is recommended, and children are encouraged to go through gymnastic exercises as soon as they are able to do so. The drainage tube is not withdrawn until all discharge has ceased.

THE PROTOZOON OF SCARLET FEVER.

DUVAL has investigated eighteen scarlet fever cases with the view of determining if the protozoon described by Mallory as present in the skin could be detected in the serum of superficial vesicles produced by blistering agents. Positive results were obtained in five cases, and the following forms were recognised :—(1) Forms of irregular and varying contour and of amoeboid characters. (2) Spherical forms with a diameter of from 3 to 6 μ , and of rosette-like appearance ; these correspond to the stage of sporozoit formation in other known parasites. (3) Small oval and comma-shaped forms, staining as darkly as the rosette structures ; from their shape and size these appear to be produced by segmentation of the last-named forms. (4) Brightly staining forms with a coarse intracellular network, and containing a dark spot. The author believes that the above described forms are stages in the developmental cycle of a single and specific protozoon.—(*Virchow's Archiv.*, Bd. 179, Heft 3, S. 485.)

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Inflammation Idea in General Pathology. By W. H. RANSOM, M.D., F.R.S., F.R.C.P.; Consulting Physician to the General Hospital, Nottingham. London: Williams & Norgate. 1905.

THE volume before us differs much from the ordinary type of work which is brought before the profession by the present-day medical bookseller. The qualities which apparently command success as a commercial speculation are abundance of facts and a superabundance of illustrations. Dr. Ransom's work does not contain either one or the other, for illustrations are entirely absent and facts are comparatively few, and, consequently, we fear that it will hardly appeal to a wide circle of readers, but amongst those to whom it is apparently addressed—a select circle of philosophical physicians—we have no doubt that it will excite considerable interest. It is in fact an essay upon the processes of inflammation and of repair as found throughout the whole of the animal and vegetable kingdoms, and contains much close reasoning regarding the final causes of those processes. The author does not now for the first time bring forward his ideas, nor does he completely finish with his subject in the present work. As early as 1892 he drew attention to the analogies which exist between animal and plant diseases, and since then he has been gradually formulating, collecting, and systematising his views. He now sets them forth in this book, which is later to be followed by another, in which the gradual historical development of the inflammation idea will be traced.

His thesis, as set forth in the introductory chapter, is the proof of the following three conclusions, which he has drawn from the observation of the processes of repair, of inflammation, and of recovery as seen in all manners of

organisms—namely, that (1) repair is an evolved and necessary faculty of all organisms, without which they could not maintain themselves in life; (2) inflammation is not an evolved and necessary faculty, but is an abnormal and damaging process antagonising repair; (3) when inflammation ceases, recovery may take place in virtue of the persistence of the reparative faculties which had been misdirected but not destroyed by the irritant causes of inflammation

(Of these three conclusions the second is the most interesting, and is the one to which the writer gives most of his attention in his endeavour to prove that "the responses to irritant actions and irritation show a relation of fitness to the irritant only, with one of damage to the responding organism, while the responses to a simple injury show a relation of fitness to the injured organism." In other words, inflammation is sharply distinguished from repair. The former process is not regarded as an evidence of resistance in the inflamed organism, but rather as an evidence that the resistance has been broken down. It is in fact for the good of the irritant and not for the good of the irritated. To give a concrete example—the exudate in lobar pneumonia is regarded as being poured out in order that the attacking pneumococcus may grow and flourish, and not in order that the body may defend itself against the onslaught. One is tempted for a moment to believe that the writer is merely juggling with words, but a study of his reasoning shows clearly how he has been led to formulate the above indicated theory, which diverges so widely from received explanations. The very novelty of the idea renders it somewhat attractive, but we can hardly believe that the case is proven, though undoubtedly many facts have been brought forward in support of it. The facts, however, are largely derived from vegetable pathology, and an acceptance of them all involves an acceptance of the author's contention that inflammation is identical in the two organic kingdoms. Into the question of this identity it is impossible to enter here, but we may say that the author has advanced the inquiry considerably, and has at any rate cleared the way by showing some of the diffi-

culties that beset it. Many will, perhaps, believe that he has proved his case.

In Section II. the processes of repair, of inflammation, and of recovery, as observed in plants, are discussed under nine different headings, the study of gall-growth being especially selected as illustrating the processes. Galls, as pointed out, are produced by a local excess of cellular proliferation, and are fitly adapted to the requirements of the irritant. The galls cease to grow when the irritant ceases to require their growth; they never succeed in expelling the irritant; and they necrose and fall off when the interests of the irritating insect demand that they should do so. In these facts lie the author's strong points, but the adaptation of these to animal pathology leaves something to be desired, for it is rather a stretch of the previously trained imagination to believe that the crisis in pneumonia and subsequent clearing up of the exudate are due to a sudden change in the condition of the irritating pneumococcus and are directed in its interests. The stretch, however, becomes less when we realise the analogies between fevers and fermentation processes. One strong point the author makes in animal pathology, and that is, that if we regard the outpouring of leucocytes to form pus as directed against the attacking bacteria we should hardly expect that bacteria would "flourish and multiply exceedingly" in such pus, and that they would be always found virulent and fertile when dispersed. Phagocytosis he regards as merely the carrying away by leucocytes of those microbes which have already done their work as irritants, and are no longer important to the colony of parasites. An enthusiastic supporter of the opsonic theory would, we fancy, have some objections to urge against the above explanation, but we quote it as showing the way in which the writer manages his brief.

One is tempted to discuss many other points in the book, such as the paragraphs relating to neoplasms, and the discussion of the origin of malformations, and of repair in excess, but it would be impossible to do so within our limits, and we think that enough has already been said to show the general character of the work. It is with real

pleasure that we have ourselves perused, or rather studied, it, and we will look forward with interest to the second volume which the author promises.

The Bacteriology of Peritonitis. By LEONARD L. DUDGEON, M.R.C.P. (Lond.), Bacteriologist to St. Thomas's Hospital; and P. W. G. SARGENT, M.A., M.B., B.C. (Cantab.), F.R.C.S. (Eng.), Surgeon to Out-Patients, Victoria Hospital for Children, Chelsea. London: Constable & Co. 1905. Pp. 243.

THIS is a most interesting book, valuable alike to the pathologist and the surgeon. It constitutes a well-executed endeavour to draw conclusions of practical importance from the data supplied by careful bacteriological investigations carried out on a large number of cases comprising nearly every variety of peritonitis, and supplemented by well-thought-out experiments on animals. To pick out from so considerable a mass of carefully ascertained facts those which seem of most importance is no easy matter, and we shall not attempt it here. To go through a few chapters, drawing attention to such points as seem either novel or at any rate presented in a new and instructive light by the authors, seems the easier course to pursue, and we shall accordingly adopt it.

A leading outcome of the authors' work is the importance of the *Staphylococcus albus* in peritoneal infections. The *aureus*, which is so much more familiar to workers on infections starting from the skin or bones (infective osteomyelitis), is here conspicuous by its rarity. Most cases of intra-peritoneal hæmorrhage due, for example, to ruptured extra-uterine pregnancy or rupture of the solid viscera owe their peritonitis not, as the writers claim to show, to ferments or other chemical products liberated from the broken down blood cells, but to this organism. Whence it comes they cannot say, but there it is demonstrable in the clot a very few hours after the extravasation. Whilst exercising a powerfully attractive influence on phagocytes, it possesses a very low degree of virulence, so that one would almost feel inclined to regard it as part of the *vis*

medicatrix naturæ—one of nature's salutary instruments for exciting the necessary reaction in the injured peritoneum, and thus getting rid of the decomposable or irritating matters before they have time to become the *nidus* of the more virulent inhabitants of the bowel. If inoculated into an animal simultaneously with the colon bacillus, the *Staphylococcus albus* fails to restrain the growth of the more virulent organism; but if given a start by being introduced some hours previously, then it exercises a distinctly protective influence by calling forth swarms of phagocytes, which may perchance succeed in accounting for the subsequently inoculated colon bacilli if these latter are not all-too-numerous. "It is upon the start," so to speak, "which the white staphylococcus has had, and the ability of the individual to respond to the call, that the prognosis to a large extent depends, provided that the natural safeguard is not interfered with by violent treatment. . . . All these facts lead us to the conclusion that the *Staphylococcus albus* exercises a protective influence in peritonitis, and that by determining the advent of phagocytes. It, therefore, in nature takes the place of those chemical substances which have been found by Miyake and others to be capable of producing an artificial immunity. How or why this staphylococcus appears upon the scene we do not know, and are unable even to hazard a guess. Having arrived, however, it seems to provoke the appearance of a clear fluid exudate, which soon becomes turbid from the presence of innumerable phagocytic cells, and the more turbid it becomes the more it appears to the surgeon as something to be washed away." *Verbum sap.*—need it, we feel inclined to ask, necessarily be washed away?

The authors find that when the abdomen has been opened it is possible to make a prognosis from the microscopic examination of stained films taken from a remote region of the peritoneum. "If phagocytes are abundant and staphylococci present the prognosis should be favourable. If bacilli also are present, but if cells are abundant and cocci appear predominate, the outlook is grave but not necessarily hopeless. But if cells are scanty and dis-

integrated, and bacilli are alone or present in very large numbers, or if streptococci are present, then the case may be regarded as hopeless." Surely this is going too far. May not skilful technique, flushing out, or dry-mopping get rid of the objectionable bacilli or streptococci, or most of them, and enable the peritoneum to recover itself? Again, would he not be a bold man who, on the strength of a cover-glass film, should presume to decide that cocci present were staphylo- or strepto-?

In strangulated hernia the authors find that the important factor is the colon bacillus. If it be present in the sac then the probable outcome will be death from diffuse peritonitis. In six of their 53 cases of intestinal obstruction due to causes other than strangulated hernia, this bacillus was present in the peritoneal cavity at the time of operation, and of these not one recovered. Very different opinions are held as to the importance of the colon bacillus in peritonitis. Some believe that the real agent in the violent inflammation following on perforation is some little known and possibly obligate anaerobic microbe which, by the time of the autopsy, has been overgrown by the swarms of colon bacilli emanating from the opened intestinal canal. The researches of Drs. Dudgeon and Sargent do not bear out this view. They find that certain bacilli of the colon group are the most important, the most common, and not infrequently the most virulent of the organisms that are known to cause peritonitis.

We must content ourselves with summarising in the fewest possible words the other chief results arrived at by the writers. Of gastric perforation they observed nine cases, from every one of which they isolated, either purely or in combination with the colon bacillus or other microbes, an organism which they call the *Strepto-diplococcus*. In appendicitis they find such familiar foes as the *Staphylococcus aureus* and *albus*, the streptococcus, the colon bacillus, and *B. pyocyaneus* to be the peccant germs, and not as Veillon and Zuber would have us believe, little known organisms of anaerobic character. They have an interesting note on the occurrence of Welch's *B. aerogenes capsulatus* in the exudate of a case of appendicitis, which

recovered. We on several occasions isolated this obligate anaerobe from spreading emphysematous gangrene as well as from "foaming organs" in the *post-mortem* room, and whilst fully confirming their description of its effects on the dead rabbit, would gladly have gathered fuller details as to the Gram-stain-ability, spore formation, and cultural characters of their "strain" than are given in the text. We cannot conclude without congratulating the writers on their valuable contribution to the literature of peritonitis.

The Bloodless Phlebotomist. Vol. 2. No. 1. January, 1906.
New York: The Denver Chemical Manufacturing Company.
Pp. 20.

THIS number of a new journal, with a somewhat sensational name, contains, in addition to other matter, the following short original articles:—

"Appendicitis as an Infective Inflammation," by Professor Robert T. Morris, A.M., M.D., of New York; "The Early Diagnosis of Pulmonary Tuberculosis," by H. Edwin Lewis, M.D., of New York; "Phagedenic Ulcer," by J. Bonnefin, M.R.C.S., of Leytonstone, England.

The publishers express their willingness to comply with any request for a copy of the journal which may be forwarded to them at 57 Laight Street, New York.

The Principles of Bacteriology: A Practical Manual for Students and Practitioners. By A. C. ABBOTT, M.D., Professor of Hygiene and Bacteriology in the University of Pennsylvania. Seventh Edition. London: H. & K. Lewis. 1906.

DR. ABBOTT'S well-known work having reached its seventh edition must be regarded as well-established in the favour of scientific readers, and at this stage of its development does not call for detailed criticism. It is well and clearly written, and sufficiently, though not profusely, illustrated. It may be recommended as a safe guide through the intricacies of bacteriology, as only well-tried methods are

described, no effort at encyclopædic knowledge being displayed. At the same time we are of opinion that for practical work in the laboratory the data given in the book would need to be supplemented by a competent teacher. Furthermore, we do not think that the book has been in all particulars brought up to date. We find no mention of the bacteriology of yellow fever. It might have been well to have referred to the fate that has overtaken Sanarelli's *B. icteroides*, and to the invisibility of its presumably protozoan successor. Nor is the treatment of the important paratyphoid question anything like commensurate with its importance.

The Theory and Practice of Medicine. By FREDERICK T. ROBERTS, M.D., B.Sc., F.R.C.P., Fellow of University College; Consulting Physician to University College Hospital, &c., &c. In two volumes. Tenth Edition. London: H. K. Lewis. 1905.

It is scarcely necessary to do more than mention the appearance of the tenth edition of a work, the earlier editions of which have become so familiar to most of us from our student days upwards. Dr. Roberts' work has long since established its place as one of the best English text-books of medicine, and to judge from the volumes now before us we feel sure that it will long maintain its reputation.

It differs from many other works in containing some introductory chapters on general pathology, including under that heading such subjects as dropsy, pyrexia, and anæmia, and also, under the different systems, preliminary remarks are made with reference to the symptoms common to diseases of those systems. This we regard as a most valuable addition to, or rather portion of, the work, as it enables the student to appreciate the meaning of what he sees and hears concerning clinical cases, and to estimate at their proper value groups of symptoms. It helps in fact to bridge over the interval of time that must elapse between the first year of hospital and the systematic study of pathology—a period of time which for lack of such aid is often almost completely wasted as far as hospital work is concerned. We could have wished

that these introductory chapters had been more extensive and that some remarks had been made on the principles and methods of physical diagnosis, as far as the lungs and heart at any rate are concerned, but no doubt the author felt that such subjects are best taught in the wards.

The volumes are of a very convenient size for reading, the paper and printing good, and the latter not too small. We can strongly recommend the work to both students and practitioners.

A Plea for the more Energetic Treatment of the Insane. By CHARLES WILLIAMS, L.R.C.P., L.R.C.S., L.S.A. London: Henry J. Glasher. 1905. Pp. 51.

WE are inclined to admit the justice of the view expressed in this little *brochure*—viz., that there is too great a tendency in Asylums (as elsewhere) to drop a mode of treatment altogether if it fails to give the phenomenal results at first claimed for it. At the same time it must be borne in mind that to carry out a troublesome and costly method in a large number of cases would require a great increase of staff, and would involve an augmented expenditure in other ways which might well be deemed unjustifiable in view of problematical or paltry results.

Some of the modes of treatment urged, such as those by thyroid, electricity, and the prolonged warm bath, are as a matter of fact used from time to time, but quite possibly not to a sufficient extent, and the same would apply to the Turkish bath and counter-irritation. The utility of setting up somatic disease to cure insanity is questionable, and the arguments for it are quite speculative—indeed, the reasoning all through is based on reading of the text-books and the *Journal of Mental Science* rather than on practical experience, with few exceptions. The assumption that delusion is a disease in itself and not the sign of a deep-seated brain disorder is an outcome of this want of practical experience, and the treatment (by argument, &c.) based on it is too futile, not to say dangerous, to deserve serious trial in any but the most exceptional cases. Some of the papers cited in support of the author's views indicate a rather uncritical turn of

mind on his part; and, on the whole, it may be said that many of his propositions are more convincing than the arguments by which he endeavours to support them. With the general contention that no mental case should be despaired of and no treatment omitted so long as the faintest hope of recovery remains we are, however, quite in agreement.

Psychological Medicine: A Manual of Mental Diseases for Practitioners and Students. By MAURICE CRAIG, M.A., M.D. Cantab., M.R.C.P. Lond. London: J. & A. Churchill. 1905. Pp. viii + 447.

ALTHOUGH not free from blemishes, this work is one which may confidently be recommended to the student. The views expressed therein, on the whole, are sound, and the author has no particular fads to ventilate, unless his views on blood-pressure can be so termed. Even these, however, are not unduly obtruded, and the section dealing with his observations on this subject is one of the most interesting portions of the book.

Furthermore, the clinical descriptions and the sections on therapeutics are well done and useful, and the attempt made to deal with so-called mental diseases on the same footing as other diseases is one entirely to be commended. The pathological portions of the book cannot be said to be satisfactory—indeed, the pathology of hæmatoma auris as given is distinctly wrong—but in the present somewhat inchoate condition of this department of pathological science the defect is of less importance. As regards nomenclature and classification, Dr. Craig keeps very much to old lines, on which he has endeavoured to graft such modern concepts as dementia præcox, and, although this so-called disease cannot be said to have made good its claim to recognition as a morbid entity, it is certainly well that the student should know something of a subject so much discussed. As a matter of fact, however, the scheme, as given, can hardly be called a classification at all, but unless we are to return to the old symptomatic system one must be content with a mere unclassified list for the present.

Dr. Craig's book reads pleasantly, and, although not in

agreement with him on some minor points, we may say that it is one of the best students' manuals on the subject in the language.

Diseases of the Skin: A Manual for Students and Practitioners. By ALFRED SCHALCK, M.D., Instructor of Dermatology, Genito-Urinary and Venereal Diseases, Rush Medical College (in affiliation with the University of Chicago), Chicago, Illinois. Illustrated with 34 Engravings. London: Hodder & Stoughton.

THIS short manual of 225 pages gives as clear and concise an account of our present knowledge of one of the most important branches of practical medicine (and surgery) as we believe could have possibly been comprised within the space. It would be idle—perhaps more nearly impertinent—pretension on the part of the reviewer to offer a satisfactory criticism in detail. So we will content ourselves with recommending the little volume as a whole—which we do with cordial confidence. Author, printer, publisher—indeed we should not omit the paper-manufacturer and the book-binder—have all combined, in the exercise of their respective functions, to make the manual both instructive and attractive. We cordially congratulate Messrs. Hodder & Stoughton on the exquisite taste with which the numbers of this series of manuals has been prepared, and sincerely trust that their well-aimed efforts will be crowned with the success which they surely deserve.

Anatomy and Physiology for Nurses. By LEROY LEWIS, M.D.; Surgeon to, and Lecturer on Anatomy and Physiology for Nurses at the Lewis Hospital, Bay City, Michigan. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1905. 8vo. Pp. 317.

THIS attractive volume is so æsthetically turned out that it may gratify the most fastidious aspirant to the attainment of the most up-to-date science and art of the practice of the nursing profession. There are 146 well-chosen and highly instructive illustrations; of which those which illustrate the

anatomy of the circulation give the arteries and veins in colour, while the two last exhibit, respectively, "ovary with mature Graafian follicle about ready to burst"; and "corpus luteum," displaying three stages—of recent blood, wrinkling of its walls, and contraction. There is an excellent series of "review questions" at the end of each of the twelve chapters of which the text is made up; and, as we have already intimated, the general style of the volume leaves nothing to be found fault with or desired. The lucidity of the author's diction is worthy of corresponding praise, so that we think the coming nurse is to be congratulated on the pleasant lines of her education in the early years of the twentieth century.

Therapeutics: its Principles and Practice. By HORATIO C. WOOD, M.D., LL.D. (Lafayette, Yale, Pennsylvania); Professor of Materia Medica and Therapeutics in the University of Pennsylvania; Member of the National Academy of Science. Twelfth Edition. Thoroughly revised and adapted to the Eighth (1905) Edition of the United States Pharmacopœia. By HORATIO C. WOOD and HORATIO C. WOOD, Jun., M.D.; Demonstrator of Pharmacodynamics in the University of Pennsylvania. Philadelphia and London: J. B. Lippincott Company. 1905.

THE central fact recorded in the title of this extremely handsome and well-printed volume is ample proof of the popularity of the work, as evidenced by a record which has rarely been equalled, and, we believe, never surpassed. The fact, too, that it is a twelfth edition which now lies open before us reduces the responsibility of the critic almost to the zero plane; attempts at detraction would be pretty surely as useless as they must necessarily be ill-natured; while aggressive praise would be merely the story (with corresponding result) of the attempt "to gild"—but no, no! we must not quote. The illustration is now far too venerable to be dragged into metaphoric illumination upon the occurrence of every appropriate opportunity. It is quite superfluous to tell the professional public that Professor Wood's volume is a most excellent and reliable guide-book to the science and art of therapeutics. Its exquisite appearance—both external and

internal—is a distinctive feature which forces itself upon the notice of the reviewer as conspicuously as the quality of the contained text.

As we are told in the preface, "this treatise is intended to be used by the student as a text-book and by the practitioner as a work of reference." The radical changes which have been carried out in the preparation of the new edition of the United States Pharmacopœia have necessitated corresponding ones in the volume before us. The wide scope of the revision has been necessarily expanded, too, by the fact that the appearance of that nuclear chart of Western therapeutics was delayed for a couple of years after the anticipated date. The consequential resultant effect on the present edition of this text-book is that the changes and additions to be found therein are far greater in quality and quantity than in the case of any of the former issues.

The chapters on Expectorants and on Disinfectants have been completely re-written, and new classifications of their items adopted. Local anæsthesia is amply dealt with, and the now prominently-discussed spinal and neural anæsthesias are fully considered. Camphor has been relegated to the class of cardiac stimulants; hyoscine is discussed under the head of Delirifacients, and carbolic acid is placed with the Disinfectants—the articles upon them being practically new. So, too, are those on the morphin derivatives, xanthin-bases, methylene-blue, the antitoxins, and alcohol. More than seventy new and important drugs are discussed, in addition to those of the last edition, of which the principal are:—Agurin, airol, anæsthesin, argyrol, apocynum, bismuth subiodide, bismutose, collargol, creosotal, erythrol tetranitrate, gelatine, geosote, helmitol, hedonal, hydrofluoric acid, hetol, isarol, isopral, kaolin, lecithin, lysol, nirvanin, orexin, oxycamphor, pyrosal, quinic acid, scopola, sidonal, salipyrin, thiosinamin, theocin, tachiol, theocol, urasol, urotropin, and veronal.

The typographical features of this volume are beyond criticism; in *very slightly* hyperbolic phraseology, such as we frequently meet in the prose-poetry of the average literary reviewer, they are "beyond all praise." It is hardly necessary to add that we recommend the volume to the favour

of all our readers. It is interesting to note, in conclusion, that the distinguished author dedicates the volume to his uncle; while both the editors bear his own name—in full. May the family of Wood continue for many generations to illuminate the dark places of the tortuous labyrinth of the art of healing!

Organotherapy, or Treatment by Means of Preparations of Various Organs. By H. BATTY SHAW, M.D. (Lond.), F.R.C.P.; Lecturer on Therapeutics, University College, London; Assistant Physician to University College Hospital, &c. Illustrated. London: Cassell & Co. 1905. Pp. 256.

DURING the past ten years or so a large amount of work has been done in connection with the "internal secretion" of many glands, and in some cases (*e.g.*, the thyroid and the suprarenal glands) distinct therapeutic advances have been made by the use of preparations derived from them. But to a large extent the physiology, pathology and therapeutic uses (if any) of many of the glands of the body is in a state of uncertainty, and the papers that have been published on these subjects are scattered here and there through the medical journals of the world. Dr. Shaw has performed a task which will be found useful by anyone wishing to refer to the literature of this subject; he has, with much industry, made a compilation of a very large amount of work, and brought it together conveniently into a small space. The original papers are very freely referred to, so that the student will be enabled easily to consult the original authorities.

About two-thirds of the book are occupied with the subject of the thyroid and adrenals; in the remaining third the pancreas and liver, the testis and ovary, the pituitary body, the thymus, and other glands are considered. The anatomy and physiology of each is first described, and then their morbid relations, as far as they are known. Their therapeutic uses are described, and the preparations on the market and their doses are mentioned.

As we have said, the book will be found useful by those who are making any special study of the subject. As far as the ordinary medical reader is concerned, hardly enough is

known of many of the matters touched on to render it useful for him to read pages of contradictory experiments and divergent views. For example, the chapter on exophthalmic goitre opens with these words :—"Despite the brilliant successes of the treatment of various forms of athyrea by substitution products derived from the thyroid glands of animals, practically no important advance has been made in the treatment of Graves's disease"; and then follow seventeen pages, all devoted to the description of various attempts that have been made to treat this disease with preparations of thyroids and other organs, all of which have proved unreliable.

Medical Diagnosis : A Manual for Students and Practitioners.

By AUSTIN W. HOLLIS, M.D., Attending Physician to St. Luke's Hospital, New York; Physician-in-Chief to the St. Luke's Hospital Out-Patient Department; Attending Physician to the New York Dispensary. Series edited by VICTOR COX PEDERSEN, A.M., M.D., Instructor in Surgery and Anesthetist, and Instructor in Anesthesia at the New York Polyclinic Medical School and Hospital; Genito-Urinary Surgeon to the Out-Patient Departments of the New York and the Hudson Street Hospitals; Anesthetist to the Roosevelt Hospital. Illustrated with 13 Engravings. London: Hodder & Stoughton.

WE are, in a general way, by no means prejudiced in favour of the genesis and propagation of volumes of the "epitome" and "student" "series" type. In fact, we have sometimes almost gone so far as to pray—in the intellectual agony of our professional consciences—that all the volumes known to us of such nature and nominal qualification would pass out of existence, or be enclosed within so reliable a receptacle as the bottom of the sea! The first symptom of a lysis of such general opinion of a certain class of literature has just appeared—on the opening and perusal of some numbers of the new series offered to the public by Messrs. Hodder & Stoughton, of which the volume before us is a representative specimen. Like its fellows, it is exquisitely printed on beautiful paper, and bound with tasteful neatness. The style—like that of the best class of American medical literature generally—is of crystalline translucency. The contents,

we need hardly add, are far too multifarious to be adequately discussed in detail within the limits of a review. So that we will not pretend to perform an impossibility or inflict an impertinent pretension on our readers, but will simply close this notice by cordially recommending this handy, and æsthetic as well as scientific, manual to the attention of all our readers.

Nodal Fever (Febris Nodosa). Synonyms: Erythema Nodosum—Erythema Multiforme. By ALFRED AUSTIN LONDON, M.D. (Lond.); Lecturer on Obstetrics, and Clinical Lecturer on Diseases of Children, University of Adelaide; Visiting Medical Officer Adelaide Children's Hospital. London: Baillière, Tindall and Cox. 1905. 8vo. Pp. 90.

THE author of this booklet justifies its publication by the facts that his views on the subject of erythema nodosum appeared in print as long ago as 1890, that his paper directed attention to the disease—although his “ideas failed at the time to commend themselves to those to whom they were addressed,” and—most significant consideration of all—one at least of his confrères is prepared to corroborate the general accuracy (!) of his observations at present date (July, 1905).

The author's theory of this interesting disease is “that it is in reality an acute specific infectious fever, and not merely an affection of the skin as has hitherto been usually taught. He considers that the old name, *erythema nodosum*, “though pleasingly familiar, is at once inappropriate and slightly barbarous.” He discusses the etymology, of course. His present view of the nature of the disease has been gradually evolved from the results of his personal experience in clinical practice. For the details of these we must refer the reader to the volume itself. There are some carefully drawn-up temperature charts and four coloured plates illustrating the disease. The tints are impressively vivid, but the erythematous patches here depicted, of the author's cases of *nodal fever*, do not approach the geometrically oval outline at all so nearly as those of the *erythema nodosum* of our own familiar acquaintance have so usually done.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND

President—SIR THORNLEY STOKER, M.D., F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF PATHOLOGY.

President—JOSEPH O'CARROLL, M.D., F.R.C.P.I.
Sectional Secretary—PROFESSOR WHITE, F.R.C.S.I.

Friday, January 5, 1905.

THE PRESIDENT in the Chair.

Fractures of Os Calcis and Astragalus.

PROFESSOR BENNETT said—One reads in the present day the old assertions about fractures repeated as if they had not been put aside by the accumulated knowledge of the last century. I take this example from a book bearing the date 1900:—"Fractures of the tarsal bones are always caused by direct violence (passing of a carriage wheel), falling of a heavy weight upon the tarsus." To put any addition to our knowledge of the fractures of the tarsus is a matter of interest in helping to wipe out the "always" from the passage I have quoted. Bad anatomy does not help us in this difficulty. "The astragalus is a peculiar bone, inasmuch as it articulates with four different bones and shows no point of insertion of any tendon." May not the horizontal division of the external lateral ligament be regarded as tendon? I regret that I am not able to state anything of the life history of the examples I now record, but I present them as I have them. The first of these is a left os calcis which Professor Dixon kindly gave to

me this session, because the portion of bone forming the articular surface in front of the sustentaculum tali is wanting. The specimen agrees in many particulars with the case of Legouest, figured in the Thesis of A. Ballenghien,* and is wanting in the fact that the little piece of bone has not been preserved. My next two specimens concern the astragalus. Some five and twenty years ago I published a discussion on the supposed fracture of the tubercle of the astragalus, whether it be a fracture or not or a vestige of the ostrigonum tarsi.^b I have multiplied specimens of this kind, until now my series number eleven. Here I show a united fracture of the same region of the bone, without doubt a fracture well and truly knit, but how caused I cannot say. The anterior part of the tubercle with the groove for the tendon of the long flexor of the great toe has been broken and united with the minimum degree of deformity. The question which is most difficult of solution is—How did it get broken? By what force, direct or indirect? Lastly, I show a specimen which I am again very hard set to read. I put this by in spirit last summer, puzzling over it to find some solution of its mysteries. While the summer passed the spirit sped away, and when I came back to my work almost all my mysterious signs of fracture had gone. See how I got the specimen. A student in his first year had dissected the lower extremity to the last shred, and he had got the astragalus isolated neatly from the bones of the leg and from the tarsus, and, seeing me pass, asked me to look at “the fracture.” I agreed in his diagnosis. I said I could see no damage or trace of it in the bones of the leg or of the tarsus, and for some reason, being pressed for time, I was content to walk off with the bone. No one here would give me credence for my diagnosis of fracture had I not put the specimen in water a few days ago, and so repaired the damage of the evaporated spirit. Read the lesion as you like. A fracture it was, taking effect on that part of the head of the bone that rests on the calcaneo-scaphoid ligament, and it has not passed to any deeper extent than the cartilage.

Cancer of the Œsophagus with Secondary Growth in the Heart.

DR. TRAVERS SMITH exhibited some of the thoracic viscera of a man, aged seventy, who had died under his care in the Whitworth Hospital of flat-celled cancer of the œsophagus. The

* These par A. Ballenghien. July 20, 1890. Page 126.

^b Journal of Anatomy. Vol. XXI.

growth had caused a very narrow stricture, and had grown by direct extension into the outer coat of the descending aorta. Numerous small secondary deposits were also found in the outer coat of the aorta, and the bronchial lymph glands were cancerous. Embedded in the wall of the left ventricle near the auriculo-ventricular groove was a secondary deposit the size of a large hazel-nut, which on microscopical examination, made by Dr. Earl, showed typical flat-celled arrangement. There were no metastases of the disease below the diaphragm with the exception of a cancerous deposition in a single lymph gland situated under the peritoneum on the anterior aspect of the stomach near the œsophagus, and nearer the lesser curvature than the great. Dr. Travers Smith laid stress upon the frequency with which this gland was affected in internal, especially abdominal, cancer. He also spoke of the difficulty in fully explaining how the secondary deposit in this case had reached the heart.

THE PRESIDENT said that an interesting point had been raised—namely, the dissemination backwards against the lymph stream. This must often happen also in various forms of tubercle. The particle must be supposed either to have gone against the stream or else it had been carried by the subclavian, returned by the vena cava, and going through the pulmonary system was deposited by the coronary artery in the heart.

PROFESSOR BENNETT said the same thing must occur in cancer *en cuirasse*, as the cancer certainly did not follow the lymphatic stream.

DR. LITTLE said that in cases of tubercular meningitis the original lesion was often found in the bronchial glands, so that in such cases the infection must also travel against the stream.

DR. TRAVERS SMITH briefly replied.

Hydrocephalus.

DR. O'CARROLL showed a hydrocephalic brain of a boy seventeen years old who had suffered for about six years from headaches and frequent sub-comatose attacks lasting a few days. The cranium was not much larger than normal, and was fully ossified. The ventricular cavities were considerably dilated, but not to the degree of thinning the brain substance excessively. The greatest thinning was at the lower anterior part of the lateral ventricle where the cortex was adherent to the underlying bone. During the last couple of months of the boy's life a colourless

watery fluid, recognised to be cerebro-spinal fluid, used to drip freely from time to time from the left nostril. No thickening or occlusion of the pial curtain descending from the cerebellum to the medulla was found. It was evident that the serous discharge from the nostril came from the left ventricle by way of the adhesion of the temporo-sphenoidal lobe to the body of the sphenoid.

It is to be noted that during life the boy had been sub-normal in intelligence, but by no means an imbecile; he had learned to read and write, and could perform simple mental calculations. He was of average height and weight, and the head was not abnormally large, but the sexual organs were poorly developed. The skin, of normal texture, seemed somewhat tightly drawn over the limbs as it ordinarily is on the outside of the thigh; but there was no scleroderma. There had been no ataxy. In walking his toes caught the ground now and again, and Babinski's toe-extension sign was present, while increased knee-jerk and ankle clonus were absent. There was no proof of hereditary syphilis; his birth had been instrumental. Dr. O'Carroll suggested that, as in other cases, hydrocephalus seems to depend on obstruction of the posterior outlet of the ventricles, this may have started in obstruction of anterior fissural outlets by an early basal meningitis of adhesive character, the outlet re-asserting itself recently in the nasal drip.

DR. EARL described the appearance of the brain on making a *post-mortem* examination. There were a number of points on the anterior surface of the temporo-sphenoidal lobes where the brain was adherent to the bone. Also at one point on the lower surface of the left temporo-sphenoidal lobe there was a thin piece of brain left adherent, a small hole resulting. The membrane over the roof of the fourth ventricle did not appear to be thickened. The ventricles of the brain were generally distended, and the foramen of Munro was much enlarged. The sella turcica was very large, as a result of the ventricular distension, not of any change in the pituitary body which was simply flattened out.

DR. TRAVERS SMITH said that Dr. O'Carroll deserved great credit for his diagnosis, as the diagnosis of chronic hydrocephalus was often very difficult in its early stages. He described a case which he believed to be chronic hydrocephalus in a girl aged eleven. She had a distressed, anxious expression, and was completely paraplegic. Knee-jerks were lost. Legs and practically the whole trunk were anæsthetic. Pupils were widely dilated. Pulse 60.

He did a lumbar puncture, and the cerebro-spinal fluid came away in a strong stream. It was clear, and contained no micro-organisms and practically no cells. He presumed that Dr. O'Carroll's case was one of hyper-secretion of the ependyma, and he wondered if it had anything to do with the immature sexual organs, the condition of the skin and subcutaneous tissues.

DR. MOORHEAD described a case of his own in which hydrocephalus had occurred after pyrexia, lasting for sixty days, in a man aged sixty-five. There was no obstruction to outflow, and there was increase of the subarachnoid fluid. The cerebro-spinal fluid was distinctly turbid, and he cultivated the *Bacillus coli communis* from it. He regarded the hydrocephalus as due to inflammation of the ependyma.

DR. NEIL also described a case in an infant, aged three weeks, from which he had removed twenty ounces of cerebro-spinal fluid through the occiput.

DR. O'CARROLL, in replying, said that although he had got no proof of syphilis in the case, he had perhaps suspected it as being the cause. He did not know whether the condition of the skin could be associated with pituitary mischief or not.

SECTION OF SURGERY.

President—SIR ARTHUR CHANCE, P.R.C.S.I.

Sectional Secretary—E. H. TAYLOR, F.R.C.S.I.

Friday, January 12, 1906

THE PRESIDENT in the Chair.

Remarks on Gastro-enterostomy.

MR. R. CHARLES B. MAUNSELL read a paper entitled "Remarks on Gastro-enterostomy, with description of a New Clamp." He advocated operation in gastroptosis and atonic gastritis in addition to the more commonly recognised indications. He considered that there should be no fixed rule for the site or form of incision in the abdominal wall or for the site of junction of the viscera, as the first would depend upon the amount of ptosis present, often lying partly below the level of the umbilicus on the left side, the junction of the viscera being made near the pyloric antrum, or at the most dependent portion of the stomach, according to the amount of muscular power present in the stomach

walls. A new form of clamp was described and shown; it was made somewhat on the principles of Carwardine's intestinal clamp, and held the parts neatly in position during the operation. A short *résumé* was then given of the various post-operative troubles and their treatment.

THE PRESIDENT expressed himself in favour of clamps, and recognised the advantages of those designed by Mr. Maunsell. In some of his cases vomiting did not occur at all after the operation. He referred to the advisableness of suturing the proximal loop of the jejunum to the meso-colon with a view to prevent subsequent internal strangulation.

MR. BLAYNEY was not in favour of clamps, as he considered their use endangered risk of post-operative hæmorrhage. He had not known of any case in which dispensing with clamps had led to any untoward result through the escape of stomach contents or prolongation of the operation.

MR. JAMESON JOHNSTON was in favour of clamps, and had not noted hæmorrhage in any of his cases. He considered it essential that the anastomotic opening should be free, and that the direction of the peristaltic wave in the stomach and jejunum should correspond. He admired the principles of Mr. Maunsell's clamps.

MR. WILLIAM TAYLOR had used clamps like those of Moynihan, but of a lighter build; he thought those of Mr. Maunsell were an improvement. He also thought hæmorrhage after gastro-enterostomy could be prevented if the sutures were properly introduced: He had seen one fatal case of vomiting due to the vicious circle.

MR. EDWARD H. TAYLOR had been rather startled by hæmorrhage in one case after gastroenterostomy, although he had used every precaution in the suturing process. At present his practice was, in making the gastric incision, to divide the muscular coats carefully and expose the principal vessels in the submucous coat, and suture them separately before incising the mucous membrane. In some of his cases vomiting had not occurred once after the effects of the anæsthetic had passed away, and he had observed that those who did best in this respect were those in whom there was decided pyloric obstruction. Where the pylorus was fairly patent one was more likely to encounter post-operative vomiting.

MR. W. S. HAUGHTON said he had sometimes experienced difficulty in making a sufficiently large aperture in the meso-

colon, and he would like to know if Mr. Maunsell considered it likely that the vitality of the colon would be dangerously affected by dividing some of the colic vessels. Instead of clamps on the stomach and intestine he used strong fixation sutures, which held the parts steadily in apposition and facilitated accurate suturing.

MR. KENNEDY said he had discontinued the use of the Murphy Button in gastro-enterostomy. He had met with two cases of hæmorrhage where gastro-enterostomy had been performed some months previously; both recovered, however, under ordinary treatment.

MR. MAUNSELL, in reply, said he had only meant to touch on a few points respecting the operation of gastro-enterostomy. His habit now was to suture the margin of the divided meso-colon along the line of gastro-jejunal junction. He always ligatured the larger vessels met with when incising the stomach. He did not think there was much likelihood of the peristaltic currents in the stomach and jejunum being reversed if ordinary care was taken. If he could not make the aperture in the transverse meso-colon large enough without tying vessels he tied them. The proximal jejunal loop should be long enough to enable it to be connected with the most dependent part of the stomach without tension. He considered that the vomiting was due chiefly to the anæsthetic.

Partial Gastrectomy for Pyloric Tumour.

MR. WILLIAM TAYLOR read a paper on the above subject.

The patient, a woman of sixty years of age, was exhibited in perfect health, free from stomach trouble of any description, able to eat anything and everything without the slightest discomfort. The history dated back for three years, during two and three quarter years of which she complained of ill-defined stomach trouble, to which she applied the term "weakness." During the three months prior to admission pain after eating became a very prominent feature of the case, but the pain continued after vomiting; in fact she was never free from pain during this period, but food greatly aggravated it. At times it was so severe as to compel her to press her stomach across the back of a chair or edge of the table; at other times she rolled upon the floor in agony. About two months before admission she noticed a tumour forming,

which increased very rapidly in size, and it was on account of this tumour and the severe pain and vomiting that she sought admission to hospital. On examination the tumour was found to be situated a little above and to the right of the umbilicus; it was hard, nodular, and firmly fixed to the anterior abdominal wall. There was no tenderness. The stomach was moderately dilated. The patient herself was greatly emaciated. Examination of the gastric juice showed a complete absence of free hydrochloric acid. The diagnosis of malignant disease was made on account of the age of the patient, her cachectic appearance, the rapid growth, the hard, irregular nature of the tumour, and the absence of free HCl. from the gastric juice. Exploratory laparotomy was performed when it was discovered that by excising portion of the abdominal wall to which the tumour was adherent the growth could easily be brought outside. This was accordingly done, and as the tumour presented all the naked eye appearances of malignancy, a partial gastrectomy was performed. The cut ends of the stomach were sewn up with two rows of silk sutures, The duodenum was freed by dividing the peritoneum over the right kidney and fixed by two rows of suture into the opening made in the posterior wall of the stomach, about one inch beyond the line of section. What was taken to be œsophagus during this procedure was subsequently found to be a constriction, due to the healing of an old-standing ulcer, which had contracted and produced an hour-glass condition of the stomach. This condition was immediately remedied by the performance of gastroplasty. Two enlarged glands were removed from the lesser omentum, and the abdominal wall repaired. The entire operation occupied exactly seventy minutes, and the shock was very slight. Recovery was rapid and uninterrupted, and she left for the Convalescent Home on the twenty-third day after operation.

Examination of gastric juice that day (January 12, 1906), seven months after the operation, showed that there was not a trace of free HCl, or, indeed, any other free acid to be found. The pathological report of the tumour demonstrated that it was apparently a mass of inflammatory material around an old-standing ulcer.

Mr. Taylor then discussed the question of the diagnosis of inflammatory tumours from carcinomata, after which he went

into the question of the operative treatment of gastric carcinoma involving the body or pylorus, and contrasted gastro-enterostomy with gastrectomy, both as regards the immediate mortality of these procedures and the average length of life after the performance of these respective operations.

The comparatively small number of cures after gastrectomy was attributed to the inability to make a diagnosis sufficiently early, and Mr. Taylor advocated strongly more frequent recourse to Mr. Moynihan's advice—viz., "that one should operate not to confirm but to make a diagnosis."

MR. MAUNSELL stated that the symptoms upon which he laid stress in the diagnosis of gastric cancer were absence of free hydrochloric acid, short duration of gastric symptoms and, in many cases, irregular pyrexia. In one case he had performed almost complete gastrectomy, but with fatal result. Quite recently he had operated on another case, and took away about half of the stomach, and the patient was making good progress. He thought that, short of cancer in the liver, every effort should be made to remove cancer of the stomach.

MR. JAMESON JOHNSTON considered that the growth should be removed if possible, as much more benefit was likely to ensue than after gastro-jejunostomy.

MR. HAUGHTON having also made some remarks, MR. WILLIAM TAYLOR replied, and the Section adjourned.

SECTION OF MEDICINE.

President—SIR WILLIAM SMYLY, M.D., P.R.C.P.I.

Sectional Secretary—F. C. PURSER, M.D., F.R.C.P.I.

Friday, January 19, 1906.

THE PRESIDENT in the Chair.

The Diagnosis, Treatment, and Pathology of Empyema.

A discussion on the diagnosis, treatment and pathology of empyema was introduced by Dr. W. G. Smith, Sir Thornley Stoker and Dr. Earl.

DR. NINIAN FALKINER submitted from the Registrar-General's statistics the following tabular statement of the ages of those whose death had been attributed to empyema in 1904, and of the associated conditions:—

TABLES I. and II. showing, for the year 1904, by age-periods, the diseases with which the deaths directly attributed to Empyema of 35 persons (29 males and 6 females) were associated.

I.—DISEASES (BY AGE-PERIODS) WITH WHICH 29 DEATHS OF MALES FROM EMPYEMA WERE ASSOCIATED.

CAUSES OF DEATH	TOTAL DEATHS	AGES AT DEATH															85 and upwards	
		Under 1 year	1	2	3	4	Under 5 years	5-	10-	15-	20-	25-	35-	45-	55-	65-		75-	85-
Broncho-pneumonia	1	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Tubercular Phthisis	4	..	..	..	1	..	1	..	1	1	1	..	..	..	..	..	..	..
Tubercle of other Organs	13	..	..	..	..	..	..	1	5	4	1	1	1	1	..	..	..	..
Pleurisy	4	..	..	..	..	..	1	..	..	1	..	1	..	..	..	1	..	..
Appendicitis	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Not ascertained	6	..	..	..	..	..	..	..	..	1	1	..	1	3	..	..	..	..

II.—DISEASES (BY AGE-PERIODS) WITH WHICH 6 DEATHS OF FEMALES FROM EMPYEMA WERE ASSOCIATED.

CAUSES OF DEATH	Total Deaths	AGES AT DEATH											Empyema Deaths					
		Under 1 year	1	2	3	4	Under 5 years	5- 10	10- 15	15- 20	20- 25	25- 35		35- 45	45- 55	55- 65	65- 75	75- 85	85- 95
Tubercular Phthisis	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Tubercle of other Organs	2	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..
Pleurisy ..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Not ascertained ..	2	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..

From above Tables it appears that of 35 deaths which were directly attributed to empyema, 20 were upon further inquiry found to be connected with tuberculous disease, 5 with pleurisy, one with broncho-pneumonia, and one followed acute appendicitis. Regarding 8 deaths from empyema, no further information was obtained.

DR. WALTER SMITH opened the discussion. [His paper will be found at page 161.]

SIR THORNLEY STOKER introduced the discussion on the surgical treatment of empyema, and gave the results of his own experience as to various methods. [His paper will be found at page 170.]

DR. EARL read a short paper on the bacteriology of empyema. [It will be found at page 178.]

SIR JOHN MOORE read notes of two cases illustrative of the difficulties which attended the differential diagnosis of empyema, or pyothorax, and hypophrenic abscess. [This communication will be found at page 186.]

SIR ARTHUR CHANCE discussed the policy of surgery towards empyema, which, he said, was very simple. [His communication will be found at page 191.]

DR. A. C. O'SULLIVAN gave particulars of the opsonic power of the blood and pus from two cases of empyema.

DR. HAYES showed four cases illustrating the good effects after operation done up to ten years previously. He pointed out that formerly irrigation was always carried out, but this was never done now. He relied on puncture with a long needle as the best aid to diagnosis, and thought that the severe operation recommended by Sir Arthur Chance was unnecessary, as his cases showed that the thickened pleura had resolved.

SECTION OF OBSTETRICS.

President—R. D. PUREFOY, M.D., F.R.C.S.I.

Sectional Secretary—HENRY JELLETT, M.D., F.R.C.P.I.

Friday, February 2, 1906.

The PRESIDENT in the Chair.

Degenerated Uterine Fibroid.

SIR A. MACAN exhibited a specimen of degenerated uterine fibroid. He said that after opening the abdomen of the patient he found the tumour pedunculated, and with adhesions. On section the tumour gave evidence of being an ordinary fibroma. Pain had previously been complained of. This form of red degenerative change is said usually to begin in the centre of these tumours. They are liable to be coloured and to slough.

Sarcomatous Degeneration of a Myomatous Uterus.

DR. ALFRED SMITH exhibited a specimen of a myomatous uterus undergoing sarcomatous degeneration. The patient was about forty-five years old, married, but had no family. Her menses had ceased. Operating he found a mass of brown matter, which he took to be a polypus. He removed the entire uterus. Professor McWeeney's report on the specimen showed, apparently, a polypoid formation projecting from the mucous membrane of undoubted sarcomatous structure. The sarcoma tissue itself was undergoing mucoid degeneration in some places, otherwise the uterus was in an advanced stage of fibro-myomatous overgrowth. Slides demonstrating the sarcomatous changes were also shown under the microscope.

DR. HASTINGS TWEEDY considered that Dr. Smith's case showed the necessity for the early removal of all myomata.

DR. JELLETT suggested that in Sir A. Macan's case the red degeneration might have been the result of bacillary infection.

THE PRESIDENT instanced a case in which he removed a tumour from an unmarried woman, which underwent a dark, mahogany-brown discoloration, almost identical with that seen in Sir A. Macan's specimen, and in which the change was due to teleangectasis.

Carcinoma of Ovaries and Uterus.

DR. JELLETT showed two carcinomatous ovaries and a uterus removed from a patient aged forty-seven. The tumours were so fixed in the pelvis that at first sight their removal appeared impossible, but, on making a transverse incision from the centre of the usual mesial incision outwards towards the left anterior superior spine, it became possible to pass the fingers below the left ovary, and so to work across the pelvis to the right. The broad ligaments were so infiltrated that it was impossible to tie them, and the uterus was in consequence removed, hæmorrhage being controlled by two clamps passed upwards from the vagina. There was a large collection of very foul pus in Douglas' pouch, and from this an infection of the abdominal wound resulted. The patient, whose pulse at the end of the operation was 160, made an uneventful recovery, save for the wound infection. At the present time, six months after the operation, she states that her health has been good, and that she has gained in weight. On examination, however, it is probable that a return is taking place in the tissues round the rectum.

Double Pyosalpinx.

DR. JELLETT also showed a double pyosalpinx and the remains of an extra-uterine foetus removed from a patient who had been pregnant eighteen months before the operation, and who had believed that she had miscarried. No ovum, however, was seen at the time, and the condition of the removed foetus made it probable that it had been retained since the supposed miscarriage. The foetus was aged about $4\frac{1}{2}$ months.

DR. KIDD said the first case reminded him of one of sarcoma of the ovaries, in which the hæmorrhage was so profuse after removing one ovary that he decided to let the other alone.

THE PRESIDENT doubted the value of operation in such cases.

Sequel to an Attack of Eclampsia.

DR. J. SPENCER SHEILL then read a paper entitled "Sequel to an attack of Eclampsia." The patient, a young primipara, had had her left kidney removed three years previously for tuberculosis. She contracted eclampsia in March, 1905, when about five and a half months pregnant. She had seven seizures, which caused the death of the foetus. Her uterus was emptied by induction of labour, and her recovery was rapid and complete. She again conceived; and on examination early in July, 1905, was found to have been two and a half months pregnant. She was cautioned about her condition, and placed on milk diet. A little later, in spite of diet and care, she developed albuminuria, which, however, was successfully combated by appropriate treatment. Again, in December 1905, albumen made its appearance in the urine, this time permanently. Oedema now began to complicate the case. Although the most vigorous measures were adopted, on the 8th of last month (Jan., 1906), when she was within about a month of term, owing to the onset of symptoms which indicated the near approach of eclampsia, induction of labour was performed, and she was delivered in eighteen hours of a living child. A few hours later she had a typical eclamptic seizure, and was successfully treated. The points of particular interest are:—(a) Are there no methods by which we can with certainty abort threatened eclampsia? (b) Would it not be for the good of everyone concerned that this woman should be rendered sterile by the operation of tube tying?

THE PRESIDENT said he believed that when our efforts to relieve the patient's condition were only partially successful we should

take measures to empty the uterus, though eclampsia may come on before we have succeeded. He thought that in the second pregnancy of this patient he would have waited considerably longer before inducing labour.

DR. HORNE preferred to have the ovaries removed, and mentioned two similar cases of his own experience. When a patient had eclampsia once, the question was, was she not likely to have recurrent eclampsia. The second pregnancy of this patient should have been prevented for this reason. He believed the kidneys were the primary cause of the disease.

DR. SHEILL said that a dead foetus was a foreign body at best; and, therefore, to empty the uterus was the most natural thing to do. Noting eclampsia was imminent in the second pregnancy of this patient, he thought it safer to induce labour. Two lives in this case were in danger; but that of the mother was paramount. Both were saved. He would like to hear their opinion.—Should sterility be effected in a patient who is liable to attacks of eclampsia?

THE PRESIDENT said he would not render her sterile.

Card Specimens.

DR. R. A. FLYNN—(a) Ovarian tumour with twisted pedicle and hæmorrhage into cyst; (b) parovarian cyst.

PRIMARY SARCOMA OF THE LIVER ACCOMPANIED BY SYMPTOMATIC PRURITUS.

SALVINI reports the case of a man, aged sixty-seven, with a primary sarcoma of the liver. Three months before admission the patient was seized with a pain in the region of the liver, which was worse on pressure, and did not disappear in spite of all efforts. Three days afterwards he was attacked with a general pruritus, which was followed by the appearance of a papular eruption. The case presented, therefore, a clinical syndrome, described by Pepere in his work on the primary malignant tumours of the liver, to which was added a dermatosis, which the author describes as symptomatic of a profound lesion in the liver.—*Riforma Medica*, Jan. 20, 1906, and *New York Med. Journal*, Feb. 17, 1906.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

For four weeks ending Saturday, January 27, 1906.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending January 27 1906, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 21.5 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,093,959. The deaths registered in each of the four weeks ended Saturday, January 27, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality.

TOWNS, &c.	Week ending				Average Rate for 4 weeks	TOWNS, &c.	Week ending				Average Rate for 4 weeks
	Jan. 6	Jan. 13	Jan. 20	Jan. 27			Jan. 6	Jan. 13	Jan. 20	Jan. 27	
22 Town Districts	20.6	20.0	19.3	21.5	20.4	Lisburn -	45.5	9.1	27.3	27.3	27.3
Armagh -	6.9	-	13.7	13.7	8.6	Londonderry	19.8	8.7	13.6	17.4	14.9
Ballymena	14.4	14.4	9.6	19.2	14.4	Lurgan -	22.1	13.3	22.1	17.7	18.8
Belfast -	21.4	19.3	19.6	23.3	20.9	Newry -	25.2	33.6	16.8	33.6	27.3
Clonmel -	15.4	15.4	20.5	30.8	20.5	Newtownards	17.2	28.6	32.9	45.8	28.6
Cork -	14.4	13.7	18.5	21.2	17.0	Portadown -	5.2	15.5	15.5	25.8	15.5
Drogheda -	8.2	49.0	12.3	12.3	20.4	Queenstown	6.6	19.8	6.6	-	8.3
Dublin - (Reg. Area)	21.7	21.7	20.1	21.2	21.2	Sligo -	24.0	28.8	4.8	9.6	16.8
Dundalk -	8.0	43.9	31.9	16.0	24.9	Tralee -	31.7	5.3	31.7	10.6	19.8
Galway -	27.2	15.5	15.5	23.3	20.4	Waterford -	31.2	13.6	11.7	13.6	17.5
Kilkenny -	9.8	24.6	9.8	29.5	18.4	Wexford -	18.7	18.7	32.7	37.4	26.9
Limerick -	17.8	30.1	23.2	16.4	21.9						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, January 27, 1906, were equal to an annual rate of 1.2 per 1,000, the rates varying from 0.0 in fourteen of the districts to 22.9 in Newtownards—the 8 deaths from all causes in that district including 3 from measles and one from whooping-cough. Among the 160 deaths from all causes in Belfast are one from scarlet fever, 3 from whooping-cough, 2 from enteric fever, and 3 from diarrhoeal diseases.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, January 27, 1906, amounted to 220—107 boys and 113 girls; and the deaths to 160—92 males and 68 females.

DEATHS.

The deaths registered during the week ended Saturday, January 27, represent an annual rate of mortality of 22.0 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the area, the rate was 21.2 per 1,000. During the four weeks ending with Saturday, January 27, the death-rate averaged 22.3, and was 7.1 below the mean rate for the corresponding portions of the ten years 1896–1905.

The deaths registered (160) include one from whooping-cough, one from diphtheria, 3 from diarrhoeal diseases, and 2 deaths which were attributed to influenza. In each of the 3 weeks preceding deaths from whooping-cough were 2, 3, and one deaths from diphtheria were 2, 2, and 0; deaths from diarrhoeal diseases were one, one, and one; and deaths from influenza were 2, 2, and 0.

There was one death from lobar pneumonia, there were 9 deaths from broncho-pneumonia, and 6 deaths from *pneumonia* (not defined).

The deaths from all forms of tuberculous disease amounted to 27, and included 8 deaths from tubercular phthisis, 13 deaths from *phthisis*, one death from tubercular meningitis, and 5 deaths from other forms of the disease. In the 3 preceding weeks, deaths from all forms of tuberculous disease were, respectively, 33, 30, and 28.

There were 4 deaths from carcinoma, one death from sarcoma, and one death from cancer (undefined).

The deaths of 4 infants were due to prematurity.

The deaths from diseases of the brain and nervous system (13) include the deaths of 4 infants under one year of age from *convulsions*.

Diseases of the heart and blood vessels accounted for the deaths of 33 persons.

There were 17 deaths from bronchitis.

Of 8 deaths from accidental violence, 3, including one child under 5 years of age, were from burns, scalds, or explosions, and 2 were by drowning.

In 6 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 4 infants under one year of age.

Thirty-seven of the persons whose deaths were registered during the week under review were under 5 years of age (23 being infants under one year, of whom 8 were under one month old) and 52 were aged 60 years and upwards, including 22 persons aged 70 and upwards, of whom 8 were octogenarians, and one (a female) was stated to have been aged 99 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious disease notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District;

Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended January 27, 1906, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Itch, or Epi- demic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping cough	Cerebro-spinal Fever	Total
City of Dublin	Jan. 6	-	•	•	4	1	-	1	-	4	1	4	-	•	•	•	15
	Jan. 13	-	•	•	4	-	-	4	-	3	3	10	1	•	•	•	22
	Jan. 20	-	•	•	7	-	-	5	-	3	7	10	-	•	•	•	41
	Jan. 27	-	•	•	6	-	-	2	-	-	3	16	-	•	•	•	27
Rathmines and Rathgar Urban District	Jan. 6	-	•	•	2	-	-	1	-	-	1	-	-	•	•	•	4
	Jan. 13	-	•	•	1	-	-	-	-	-	2	1	-	•	•	•	4
	Jan. 20	-	•	•	1	-	-	-	-	-	1	1	-	•	•	•	3
	Jan. 27	-	•	•	-	-	-	-	-	-	1	-	-	•	•	•	1
Pembroke Urban District	Jan. 6	-	2	-	-	-	-	1	-	1	2	1	-	•	-	-	7
	Jan. 13	-	-	1	-	-	-	-	-	-	-	-	-	•	-	-	1
	Jan. 20	-	-	1	-	-	-	1	-	-	-	-	-	•	3	-	5
	Jan. 27	-	-	-	-	-	-	1	-	-	-	1	-	•	1	-	3
Blackrock Urban District	Jan. 6	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Jan. 13	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Jan. 20	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Jan. 27	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
Kingstown Urban District	Jan. 6	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Jan. 13	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Jan. 20	-	•	•	-	-	-	-	-	-	-	1	-	•	•	•	1
	Jan. 27	-	•	•	-	-	-	1	-	-	-	-	-	•	•	•	1
City of Belfast	Jan. 6	-	•	•	20	4	-	4	-	13	20	12	-	•	•	•	66
	Jan. 13	-	•	•	35	1	-	5	-	16	25	10	-	•	•	•	92
	Jan. 20	-	•	•	29	-	-	5	2	8	18	7	-	•	•	•	69
	Jan. 27	-	•	•	22	-	-	5	3	13	20	6	-	•	•	•	68

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended January 27, 1906, 2 cases of measles were admitted to hospital, 5 were discharged, and 12 patients remained under treatment at its close.

Six cases of scarlet fever were admitted to hospital, 7 were discharged, and 46 cases remained under treatment at the close of the week. This number is exclusive of 18 convalescents who remained under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

One case of typhus was admitted to hospital, and 3 cases of typhus remained under treatment at the close of the week.

Four cases of diphtheria were admitted to hospital, 4 were discharged, there was one death, and 36 patients remained under treatment at the close of the week.

Three cases of enteric fever were admitted to hospital, 5 were discharged, and 22 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 6 cases of pneumonia were admitted to hospital, 9 were discharged, there was one death, and 15 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended January 27, 1906, in 76 large English towns, including London (in which the rate was 15.3), was equal to an average annual death-rate of 15.9 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 19.6 per 1,000, the rate for Glasgow being 18.5, and for Edinburgh 20.3.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of January, 1906.

Mean Height of Barometer,	-	-	29.848 inches.
Maximal Height of Barometer (22nd, 9 p.m.),	-	-	30.636 „
Minimal Height of Barometer (9th, 9 a.m.),	-	-	29.132 „
Mean Dry-bulb Temperature,	-	-	43.0°.
Mean Wet-bulb Temperature,	-	-	41.2°.
Mean Dew-point Temperature,	-	-	38.9°.
Mean Elastic Force (Tension) of Aqueous Vapour	-	-	.240 inch.
Mean Humidity,	-	-	86.1 per cent.
Highest Temperature in Shade (on 28th),	-	-	54.9°.
Lowest Temperature in Shade (on 23rd),	-	-	29.0°.
Lowest Temperature on Grass (Radiation) (23rd),	-	-	25.2°.
Mean Amount of Cloud,	-	-	61.7 per cent.
Rainfall (on 22 days),	-	-	4.127 inches.
Greatest Daily Rainfall (on 2nd),	-	-	.638 inch.
General Directions of Wind,	-	-	W., S.W.

Remarks.

A month of W. and SW. winds, often blowing strongly; heavy

and frequent rains, and open, though not warm, weather. Rain was measured on 18 out of the first 20 days to the large amount of 3.909 inches, of which .470 inch was recorded on the 1st and .638 inch on the 2nd. During this period also atmospheric pressure was in very unstable equilibrium, depression after depression coming in from the Atlantic in quick succession and passing in an easterly or north-easterly direction across the northern parts of the British Isles. The month was mild generally in Europe, owing to the prevalence of S.W. and W. winds, but a notable exception occurred on the 24th and 25th, when keen frost was experienced in France and Germany within the area of an anticyclone which had been central over Ireland on the 22nd, and had subsequently drifted southeastwards. At 8 a.m. of the 25th the thermic gradient was both steep and interesting—Munich reported 8° F.; Bodö (in Norway, some 30 degrees further N.), 40°; Paris, 19°; London, 45°. At the same time the barometer readings ranged from 28.90 inches on the west coast of Norway to 30.43 inches at Biarritz. At 8 a.m. of the 27th, the barometer was down to 28.18 inches at Bodö.

The duration of bright sunshine was estimated at 58.0 hours, the daily average being 1.9 hours. The corresponding values for January, 1901, were 64 hours and 2.1 hours; 1902, 54 hours and 1.7 hours; 1903, 56.5 hours and 1.8 hours; 1904, 49.75 hours and 1.6 hours; and 1905, 57.75 hours and 1.86 hours.

In Dublin the arithmetical mean temperature (43.9°) was above the average (41.6°) by 2.3 degrees; the mean dry-bulb readings at 9 a.m. and 9 p.m. were 43.0°. In the forty-one years ending with 1905, January was coldest in 1881 (M. T. = 33.2°), and warmest in 1898 (M. T. = 47.8°). In 1905 the M. T. was 43.5°.

The mean height of the barometer was 29.848 inches, or 0.026 inch below the corrected average value for January—namely, 29.874 inches. The mercury rose to 30.636 inches at 9 p.m. of the 22nd, having fallen to 29.132 inches at 9 a.m. of the 9th. The observed range of atmospheric pressure was, therefore, 1.504 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 43.0°, or 0.4° above the value for January, 1905. Using the formula, *Mean Temp.* = *Min.* + (*Max.* - *Min.* × .52), the M. T. becomes 44.0°, compared with a thirty years' (1871-1900) average of 41.7°. The arithmetical mean of the maximal and minimal readings was

43.9°, compared with a thirty years' average of 41.6°. On the 28th the thermometer in the screen rose to 54.9°—wind, W.S.W. On the 23rd the temperature fell to 29.0°—wind, W.S.W. The minimum on the grass was 25.2°, also on the 23rd.

The rainfall was 4.127 inches, distributed over 22 days. Of this amount .638 inch fell on the 2nd. The average rainfall for January in the thirty-five years, 1866–1900, inclusive, was 2.230 inches, and the average number of rainy days was 18. The rainfall, therefore, and rainy days were above the average. The record rainfall for January was in 1895—namely, 5.711 inches on 24 days. In 1876, only .406 inch was measured on but 9 days. In 1905, 1.897 inches fell on 14 days.

The atmosphere was foggy on the 5th, 18th and 22nd. High winds were noted on 15 days, reaching the force of a gale on 7 days—the 1st, 9th, 11th, 13th, 14th, 15th and 24th. Snow or sleet fell on the 15th, 16th and 18th; hail on the 9th, 16th and 18th. Temperature reached or exceeded 50° in the screen on 15 days; while it fell to 32° in the screen on only 2 nights, compared with 2 nights in 1905, 3 in 1904, 7 in 1903 and 1902, 3 in 1901, 2 in 1900, 4 in 1899, only 1 night in 1898, 13 nights in 1897, only 3 in 1896, but 18 in 1895. The minima on the grass were 32° or less on 11 nights, compared with 9 nights in 1905, 11 in 1904, 9 in 1903, 12 in 1902, 11 in 1901, 13 in 1900, 16 in 1899, only 3 in 1898, 21 in 1897, 8 in 1896, and 29 in 1895.

In Dublin the rainfall up to January 31st, 1905, amounted to 4.127 inches on 22 days, compared with 1.897 inches on 14 days in 1905, 2.535 inches on 19 days in 1904, 3.269 inches on 20 days in 1903, 1.614 inches on 12 days in 1902, 2.672 inches on 17 days in 1901, 2.579 inches on 27 days in 1900, 2.483 inches on 24 days in 1899, 1.786 inches on 14 days in 1898, 2.694 inches on 17 days in 1897, only .720 inch on 14 days in 1896; and with a thirty-five years' average (1866–1900) of 2.230 inches on 18 days.

Mr. Arthur Robert Moore, B.A., reports that, at the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 29.848 inches, the range of atmospheric pressure being from 30.636 inches at 9 p.m. of the 22nd to 29.145 inches at 9 a.m. of the 9th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 43.6°. The arithmetical mean of the daily maximal and minimal temperatures was 44.2°. The screened thermometers rose to 54.8°

on the 27th and 28th, and fell to 28.9° on the 23rd. On this latter date the grass minimum was 23.9°. On the 27th the black bulb *in vacuo* rose to 83.0°. Rain fell on 21 days to the amount of 3.868 inches, the greatest fall in 24 hours being .555 inch on the 17th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 42.7 hours, of which 5.4 hours occurred on the 27th. The mean daily sunshine was 1.4 hours. The mean temperature of the soil at 9 a.m. at a depth of one foot was 41.8°; at a depth of 4 feet it was 44.7°.

Mr. R. Cathcart Dobbs, J.P., reports that, at Knockdolian, Greystones, Co. Wicklow, the rainfall was 4.065 inches on 14 days, compared with 1.005 inches on 11 days in 1905, 2.735 inches on 17 days in 1904, 3.300 inches on 15 days in 1903, 1.860 inches on only 9 days in 1902, and 4.035 inches on 16 days in 1901. Of the total amount .800 inch fell on the 2nd and again on the 17th.

Miss Muriel E. O'Sullivan returns the rainfall at White Cross, Stillorgan, Co. Dublin, at 4.636 inches on 21 days, 1.130 inches being measured on the 2nd, .570 inch on the 11th, .515 inch on the 17th, and .513 inch on the 1st.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 3.288 inches on 20 days. The greatest fall in 24 hours was .440 inch on the 7th. The mean shade temperature was 40.0°, the extremes being—highest, 55° on the 27th; lowest, 26° on the 22nd. The greatest range of temperature in 24 hours was 15.5° on the 20th, and the least was 6.0° on the 25th.

The Rev. Arthur Wilson, M.A., reports that rain fell on 23 days at the Rectory, Dunmanway, Co. Cork, to the amount of 8.915 inches. The heaviest falls were 1.16 inches on the 1st, 1.02 inches on the 17th, .88 inch on the 2nd, and .80 inch on the 11th. 8.28 inches of rain fell from the 1st to the 18th inclusive. The last 13 days were very fine.

In Cork, Mr. William Miller registered at Wellesley Terrace a rainfall of 5.42 inches, or 1.42 inches over the average. Of the total amount 5.24 inches fell on the first 17 days, while only 0.18 inch fell during the last 14 days. There were 22 rainy days in the month. The largest measurement in 24 hours was 0.98 inch on the 2nd. In 1903, 8.07 inches fell on 26 days; in 1904, 5.30 inches on 26 days; and in 1905, 3.46 inches on 18 days.

Deputy Surgeon-General C. Joynt, M.D., F.R.C.P.I., recorded 4.375 inches of rain on 22 days at 21 Leeson Park, Dublin. The

heaviest fall in 24 hours was .660 inch on the 2nd, but on the 1st, and again on the 17th, the measurement was .540 inch.

Mr. Robert O'B. Furlong, C.B., returns the rainfall at Cloneevin, Killiney, at 4.08 inches on 22 days. The maximal fall in 24 hours was .88 inch on the 2nd. The average January rainfall of the 21 years (1885-1905) was 2.343 inches on 16.9 days. The present record is the largest rainfall for January at Cloneevin with the exception of 1895, when 5.93 inches were measured on 24 days. The lowest January rainfall was .47 inch on 11 days in 1891. Snow fell on the 18th.

Dr. B. H. Steede reports that at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, rain fell on 19 days to the amount of 4.608 inches. The heaviest falls in 24 hours were 1.008 inches on the 2nd, .665 inch on the 17th, and .556 inch on the 14th.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 20 days to the amount of 4.84 inches, .95 inch being measured on the 2nd. Temperature ranged from 54.0° on the 28th to 30.0° on the 23rd. The mean shade temperature was 43.3° Fahrenheit.

At the Ordnance Survey Office, Phoenix Park, Dublin, the rainfall was 3.565 inches on 22 days, .520 inch being recorded on the 17th. The total amount of sunshine was 59.0 hours, of which 6.8 hours were registered on the 19th.

Dr. J. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, reports that the mean temperature at that health resort was 44.4, being 0.3° above the average for January during 19 previous years (1873-83 and 1898-1905). The extremes were—highest, 54°, on the 3rd; lowest, 29.5°, on the 19th. At Bournemouth the mean was 43.8°, the extremes being—highest, 54°, on the 6th; lowest, 27°, on the 23rd. The mean daily range of temperature was 7.8°, at Bournemouth it was 9.5°. The mean temperature of the sea at Sandycove bathing-place was 44.3°, being 0.4° below the average for the month during the previous 8 years. The average relative humidity at 9 a.m. was 78 per cent., being 4 per cent. below the average for the month during the previous 5 years. The rainfall was 3.76 inches on 20 days, at Bournemouth it amounted to 6.14 inches. The total duration of bright sunshine was 62 hours, as compared with 59 hours at the Ordnance Survey Office, Phoenix Park, 44.1 hours at Birr Castle, 38.4 hours at Valentia, 40.8 hours at Southport, and 86.7 at St. Leonards.

PERISCOPE.

OPSONINS AND THE OPSONIC INDEX.

THE study of immunity and of the reactions in the body produced by bacterial invasion has established the fact that the protective mechanism is a complex one, involving both the chemical agencies of certain antibacterial substances in the serum and tissue fluids, and the vital activities of the phagocytes. The protective substances exert their influence by combining with the chemical constituents of the bacteria, and are therefore called bacteriotropic substances by Koch. According to the effect which they produce they are called agglutinins, bactericidal substances, bacteriolyins, or opsonins. The opsonins apparently prepare the bacteria for ingestion by the phagocytes, since if normal white corpuscles be washed with isotonic salt solutions so as to get rid of the serum the corpuscles will no longer ingest bacteria, but they will do so at once in the presence of normal serum. The opsonic index for a given organism is the ratio of the opsonic power of the serum to be tested to that of a normal person. This is determined by taking in a capillary tube equal quantities of washed blood corpuscles, of a suspension of tubercle bacilli, and of the serum to be tested, mixing them and incubating for about 20 minutes, and then determining the average number of bacilli ingested per corpuscle. Precisely the same determination is made with a normal serum or the mixed serum of several normal persons. The ratio of the two numbers obtained gives the opsonic index of the first serum. The tuberculo-opsonic index in healthy persons seems to be very constant; thus, in various series recorded independently by Dr. Bulloch, by Dr. David Lawson and Dr. T. S. Stewart, and by Dr. G. W. Ross, the opsonic index found in healthy persons was always between 0.8 and 1.2, giving a mean of 0.95. In tuberculous subjects, on the other hand, very considerable variations are found. Professor Wright maintains, and all the above observers support his contention, that an index beyond the normal range—i.e., below 0.8 or above 1.2—is strongly suggestive of the presence of tuberculosis. Dr. Ross, indeed, has stated that he has never found an opsonic index of 1.3 in any case that was not definitely tuberculous. On the other hand, in 75 per. cent. of his cases of lupus Dr. Bulloch

found an opsonic index below the lowest normal limit of 0.8. These apparently paradoxical results find a very plausible explanation in the observations of Professor Wright, who maintains that two classes of bacterial *invasions* exist, in one of which—the local infections—the opsonic power remains permanently low and does not vary; while in the other class—the systemic infections—it fluctuates, and is frequently above the normal. In the former the mechanism of protection is not set into action owing to the local character of the infection and the rarity with which bacteria or their products reach the general circulation, whereas the variations of the index in the general infections are due to auto-inoculations of bacterial elements. When the effect of an injection of a vaccine is considered it is found that the first result is invariably a diminution in the protective substances, as shown by a lessening of the opsonic power. This is referred to as the “negative phase,” and is followed by an increase of the protective power, and a rise in the opsonic index beyond the original height, constituting the “positive phase.”—*The Lancet*, Jan. 27, 1906.

ACUTE SOFTENING OF THE SPINAL CORD.

WHEN one considers the number of published cases of ischæmic softening of the medulla in man it is at once apparent that this disease has only been very rarely observed, and it is, in consequence, of interest to report the following case. It occurred in a woman, aged sixty-two, who was admitted to hospital suffering from acute nephritis and general anasarca. Some arterio-sclerosis was also present, and slight pulmonary emphysema. On the fifth day after admission paralysis of the legs appeared, and the patient was accordingly removed to the nerve clinic. There was no history of alcoholism, lues or other diseases. The cranial nerves were intact, and the upper limbs normal. The pupil reacted both to light and accommodation. The lower limbs presented a complete flaccid paralysis, with absence of knee-jerks and plantar reflexes. From the umbilicus downwards there was loss of pain and thermic sensation, with increase in tactile sensibility. The patient gradually grew weaker, and died after three months. At the autopsy a general softening of the spinal cord was found, apparently produced by a complete obliteration of the anterior spinal artery. In some places the softening was so marked as to constitute true necrosis, which

faded gradually into normal or slightly sclerosed tissue. This change was most marked in the lumbar region of the cord, and involved both anterior cornua. Macroscopically, a cavity extending from the eleventh dorsal segment down to the conus medullaris was also found, filled up with soft pultaceous material. The microscopical appearance of the obliterated artery resembled that found in syphilitic endarteritis. The elastic and muscular tissue was normal, and only the intima showed any change. This last named presented a general thickening, with increase of nuclei and new tissue formation. In places also the fibres of the intima were swollen and degenerated. As a result of these findings, one must conclude that the condition consisted of an atheromatous process in the anterior spinal artery, which, by obstructing the vessel, produced an anæmic infarct of the spinal cord.—
L. M. Stanilowski, *Russische medicinische Rundschau*, No. IX, 1905.

ARMY MEDICAL SERVICE.

The following is the official list of successful candidates for Commissions in the Royal Army Medical Corps at the Examination held in London in January, 1906, and for which 74 candidates entered :—

MARKS	NAMES AND QUALIFICATIONS.
595	Charles Milligan Drew, M.A., M.B., Ch.B. (Glasgow).
585	Archibald Alfred Sutcliffe, M.B., B.S. (Lond.) M.R.C.S. (Eng.), L.R.C.P. (Lond.).
584	Arthur Gordon Cummins, M.B., B.Ch. (R.U. Ireland).
577	Alfred Sutton Millard, M.B., B.Ch., B.Sc. (Edin.).
573	Hugh Evelyn Gotelee, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
568	Archibald Smith Littlejohns, M.R.C.S. (Eng.), L.R.C.P. (Lond.), B.A. (Cantab.).
558	Frank Alexander M'Cammon, M.B., B.Ch. (R. U. Ireland).
548	William Rickards Galwey, M.B., B.Ch., B.A. (Dubl.).
543	Robert George Archibald, M.B., B.Ch. (Edin.).
541	George De la Cour, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
536	William Egan, M.B., B.Ch. (R. U. Ireland).
535	Frank Forrest, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
535	Timothy William Octavius Sexton, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
534	Robert George Hetherington Tate, M.D., B.Ch., D.P.H., B.A. (Dubl.).

MARKS.

- 532 Augustus Scott Williams, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 515 Alexander Dawson, M.B., B.Ch. (Aberdeen).
- 514 Clive Thornley Edmunds, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 513 Valentine Goode Johnson, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 513 Ernest William Mynall Paine, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 511 Edward John Porteous, M.B., B.Ch. (Edin.).
- 509 Edward Michael O'Neill, M.B., B.Ch. (R. U. Ireland).
- 507 Victor Cyril Honeybourne, M.R.C.S. (Eng.), L.R.C.P. (Lond.), B.A. (Cantab.).
- 504 James Clarence Ledcatt Hingston, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 501 George Bennicke Edwards, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 501 Frederick Duke Gwynne Howell, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 499 Charles Reade Munroe Morris, M.B., B.Ch. (Dubl.).
- 499 Patrick Sampson, L.R.C.P. & S. (Ireland).
- 498 William Harold Gillatt, M.B., B.Ch. (Glasgow).
- 498 John Walter Lennox Scott, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 498 William Clayton Smales, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 496 John Browne Grogan Mulligan, L.R.C.P. & S. (Edin.), L.F.P. & S. (Glasgow).
- 494 Arthur Herbert Bond, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 494 Marcus Graham Dill, M.B., B.Ch. (Edin.).
- 492 Richard Ernest Upton Newman, M.B., B.Ch. (Edin.).
- 489 Harold Jacques, L.S.A. (Lond.).
- 484 Donald de Courcy O'Grady, L.R.C.P. & S. (Ireland).
- 484 Thomas Trevor Hull Robinson, M.B., B.Ch. (Dubl.).
- 483 Thomas Christie Cyprus Leslie, L.R.C.P. & S. (Ireland).
- 480 Lawrence George Gibson, M.R.C.S. (Eng.), L.R.C.P. (Lond.).
- 475 Philip Smyly Stewart, M.B., B.Ch. (Dubl.).

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

APRIL 2, 1906.

PART I.

ORIGINAL COMMUNICATIONS.

ART. XII.—*Abdominal Tuberculosis in its Clinical Aspects.*^a By JAMES LITTLE, M.D., F.R.C.P.I.; Physician to the Adelaide Hospital, Dublin; Regius Professor of Physic in the University of Dublin.

By tuberculosis I understand the series of changes which are set up in living tissue when it has been invaded by the *Bacillus tuberculosis* of Koch. I look forward with great interest to the account of these changes which, I am sure, we shall receive from the distinguished pathologist who is to take part in this discussion. There are, however, a few elementary facts which we must bear in mind if we would understand the clinical phenomena which I will endeavour to describe.

Tuberculosis is a disease of the earlier periods of life. The changes which are produced appear to depend on three important factors, as yet imperfectly understood—namely, the virulence of the infection, which certainly varies; secondly, the amount of the infection which,

^a Read before the Section of Pathology in the Royal Academy of Medicine in Ireland, on Friday, February 16, 1906. [For the discussion on this paper see page 803.]

judging by experiments on animals, is a matter of great importance; and, lastly, the varying susceptibility of the individual and of the different tissues of his body.

When the bacillus has obtained an entry it spreads by continuity, by entering the lymph channels or by entering the blood stream. The changes it produces are, first, a rapid multiplication of the cells of the part, followed, in the great majority of cases, by an equally rapid death of the part and escape of the bacillus. But at times a protective change occurs which hinders the escape of the bacillus and prevents further infection. If we knew the circumstances which favour this protective change we would have acquired much valuable information to guide us in dealing with the disease.

I suppose there is no structure within the abdomen which may not be invaded by tubercle, but in the time at my disposal I must limit my observations to three associated structures—the peritoneum, the inner surface of the intestines, and the mesenteric and retro-peritoneal glands.

Tuberculosis of the kidneys and of the lower urinary tract is most important. Some of our views regarding it have undergone a change; but it is too large a subject for me to discuss, and, besides, falls to a certain extent into the domain of surgery.

Looking back on the cases of peritoneal tuberculosis which I have seen I can recall four quite distinct types.

In the first there existed an effusion of fluid free in the peritoneal sac. It was not as a rule large, and the cases presented the physical signs of moderate ascites. The diagnosis lay between ascites, due to cirrhosis of the liver, and the peritoneal effusion which sometimes accompanies malignant disease in the abdomen. From the latter it was to be distinguished by the age of the patient; from cirrhosis of the liver it was distinguished by the age and habits of the patient, by the presence of some fever, by the existence of more or less tenderness, and particularly by the colour of the urine, which in cirrhosis is invariably deep, while in tubercular peri-

tonitis it is seldom more highly pigmented than the normal secretion. In these cases recovery may occur, even without surgical interference.

Many years ago a girl of about fifteen, of a typically tubercular appearance, was for months under my care in the hospital. She had a considerable peritoneal effusion, quite free to move, but never so great as to interfere with her breathing or to necessitate tapping. This was before the period of surgical interference in such cases. She did not improve much, and ultimately went home, and I used to see her occasionally in the street, as she lived not far from the hospital. She then disappeared, but twenty years afterwards she came to the hospital to ask me to admit a child dying of tubercular meningitis, the offspring of her sister. She still looked delicate, but told me she had been able to get on fairly well since she had been in the hospital twenty years previously.

The second type of peritoneal tuberculosis is one of which I have seen a good many cases. In it there is a sacculated collection of serous or sero-purulent fluid. The effusion is limited by inflammatory adhesions between certain of the abdominal viscera. Over some spots in the abdomen a dull sound is elicited on percussion; over others, when we percuss over a coil of intestine, we get a resonant note. Some of these cases are liable to be mistaken for small ovarian tumours.

About ten years ago a young lady came to me because her abdomen was distended. The case appeared to me to be one of ovarian tumour, and I sent her to Sir William Smyly. I was present when he opened the abdomen. There was a sacculated collection of serous fluid, and the membrane was studded with tubercle. The girl made a good recovery, and five years afterwards was living and well in India.

The third variety of tubercular mischief in the peritoneum is not so frequent, but I have seen several cases of it. Masses varying in size from a filbert to a Tangerine orange are to be found in the abdomen. The patient

usually gives a history of attacks of abdominal pain, vomiting, and constipation. If the abdomen is opened, masses, which manifestly consist of agglutinated tubercular growths, are to be found in the walls of the intestine, in the omentum, and in the mesentery. Often there is extensive adhesion between the coils of intestine. When years ago I used to make the *post-mortem* examinations at the hospital I remember spending three hours endeavouring to unravel the abdominal contents of a young girl who had died of this form of tuberculosis.

The gravity of a case of this description greatly depends on whether there are these inflammatory agglutinations between coils of intestine. A patient on whom Mr. Heuston operated in the hospital last year had twice nearly lost his life in consequence of obstinate constipation with pain and vomiting probably due to some kinking of an agglutinated portion of the bowel.

If there are no adhesions the patient may get on very well.

Two years ago the manageress of a shop, a woman about forty, came to consult me for diarrhœa. She was a thin, spare, but active woman. I saw the motions, which were large, loose, frothy, and very offensive, but I found in her abdomen several tumours as large as small oranges, and she had many enlarged glands in her neck. Two years have passed, and although she has to take medicines continually to moderate the looseness of her bowels she is perfectly able to manage her business.

Lastly, we have localised patches of peritoneal adhesions, invariably, in my experience, due to tubercular mischief within the bowels. There may be effusion, but more frequently, I think, adhesions form over the ulcers which are within the intestine. The abdomen may be slightly distended, but is sometimes retracted. There are pain, fever, and, in consequence of the disease of the intestine, diarrhœa. In all these varieties we frequently have also pulmonary tuberculosis.

In the last variety to which I have alluded it is easy to

understand how the peritoneum becomes infected through the bases of the ulcers within the intestine. In the other forms it is not so easy to understand how the peritoneum becomes infected. It can hardly be through the blood-stream, else we should have general tuberculosis and death. In women it may be through the Fallopian tubes, and it is quite possible, as has been suggested by more than one pathologist, that the infection takes place through the intestine without leaving any evidence of its presence on the mucous surface of the bowel.

The treatment of these cases, apart from measures for the improvement of the general health and the relief of special symptoms, must be entirely surgical.

Tubercular disease of the intestine is said to be generally a disease of childhood. I have seen far more cases in adults than in children, but this probably arises from the accidental circumstance that I see more adults than children. It consists in ulceration of the solitary and agminated glands in the lower end of the ileum. The ulcers are not usually large or numerous; they have overhanging edges and indurated bases, and tend to encircle the bowel. They usually set up chronic enteric catarrh. It is said that this form of tuberculosis is seldom met with except in those who suffer from pulmonary tuberculosis. It is believed, and probably with truth, that it is set up by swallowing the infective secretion from the cavities in the lungs. Every phthisical patient, I suppose, swallows some of the mucus and pus which are formed in his lungs, but it is only those who usually refrain from spitting whose intestines become infected. It has been shown experimentally that a small quantity of tuberculous material may be introduced into the stomach of susceptible animals without injury, but that if a large quantity is introduced the animal is rendered tuberculous. I have myself seen only a few cases of intestinal tuberculosis in which disease was not also to be detected in the lungs; but I have seen a few.

A well-known gentleman, living near Dublin, was for

many years a patient of mine suffering from undoubted tubercular diarrhœa. He had no lung disease, but had been crippled in early life by tubercular mischief in his left hip joint. When I say that there is sometimes no disease in the lungs, I should rather say that there is no discoverable disease in the lungs. It is a curious fact that if there is tubercular disease both in the lungs and in the bowels the symptoms of the pulmonary malady will abate when those of the intestinal disease are strongly in evidence, and, what is still more extraordinary, the physical signs of the lung disease may be more difficult to discover. Precisely the same thing occurs in women who are pregnant, and who have pulmonary consumption.

If asked to give an opinion regarding the chest of a woman a week or two before her confinement it is very unwise to say positively that she has no disease in her lungs, because one is not able to discover the physical signs. They may be detected with ease a very few days after her labour.

The great symptom of tuberculosis of the bowels is diarrhœa. Though no drug is given, it will sometimes abate for a day to recur with violence. The stools are copious, light-coloured, very offensive, and generally frothy. The action of the bowels is provoked by taking food, and especially if exercise is taken after a meal. There is usually a little blood at times in the motions, there is colicky pain, and there is fever.

It is said that when you have disease both of the lungs and of the intestines recovery never takes place, and perhaps this is true, but hopefulness is the essence of a physician, and I have seen a few patients who, with limited disease of their lungs and considerable signs of disease of the bowels, yet made an apparently good recovery, though they were always afterwards invalids.

Apart from the general management of tuberculosis, of which I will say a few words presently, the special treatment of tubercular disease of the bowels is by diet and rest. Broths always aggravate the diarrhœa, and so do

all foods which are not in great part digested and absorbed before they reach the ileum. Small meals, consisting of eggs, cream, custard, white fish, and, above all, raw meat, should be given. I have for many years used raw meat greatly for children. Long enough kept to be tender, shred very fine, and mixed with red currant jelly or port wine, it is relished.

There is a danger, which, however, is well worth running, of giving the child tape-worm if he is fed on uncooked meat. This has occurred twice in my own experience. The patient should abstain from exertion for an hour or more after a meal. Warmth is very important, and with this object a flannel binder should be worn over the abdomen. I have also found the greatest benefit from the wet pack, which I have used for many years. A calico pad, six or eight folds in thickness, is wrung thoroughly out of cold water and laid upon the abdomen at night. Over this a sheet of protective is spread, and all is firmly bandaged. Of internal remedies probably the one now most used, and one of the most efficacious, is salicylate of bismuth, which I first saw prescribed many years ago by Sir William Broadbent. I think it is usually not given in sufficient doses.

In November last, when temporarily absent, I left a hospital patient of mine, who was very ill with tubercular diarrhoea, under Dr. Bewley's care, and he ordered teaspoonful doses of salicylate of bismuth in a wineglass of warm milk with excellent effect. Another combination which I learnt from Dr. Hudson is a pill containing a quarter of a grain of carbolic acid, a quarter of a grain of opium, and three grains of trisnitrate of bismuth. The old chalk mixture, with laudanum and catechu, is an excellent remedy, and there is also one which I would like to mention, which I learned from Sir George Porter, and which has now been almost forgotten by the profession. Sir George used to order an ounce of tormentilla root to be boiled in a pint of milk, and a wineglassful to be given to a child two or three times a day. Sometimes he added to

each dose a teaspoonful of the preparation of eucalyptus gum, which goes by the name of the *Syrupus gummi rubri*.

As I have already implied, it is not desirable to entirely stop the diarrhoea when there also exists pulmonary trouble.

Tubercular disease of the mesenteric glands is undoubtedly sometimes met with without any discoverable tuberculous lesion within the intestine. It is indicated by a tumid abdomen; the child does not thrive, and the motions from the bowels are large, light-coloured, and offensive. In children who are so affected, and where there is no intestinal trouble, I have long relied on a combination which appears to me very beneficial. It consists of hydrochloric acid with perchloride of mercury in doses suitable to the age of the patient.

Apart from the remedies I have mentioned to meet special symptoms, those who suffer from abdominal tuberculosis should have the care which has come so much into vogue for cases of pulmonary phthisis. They should live in high and dry situations. Sunshine is their best friend. They should have abundance of pure fresh air with very little exertion. Their food should be as ample as they can digest, and they generally need a moderate quantity of alcohol, which seems to promote appetite, help digestion, and lessen fever.

Of the various tonic medicines which are thought to be useful against tuberculosis I have little faith in any except hydrochloric acid, which the late Dr. Hudson used to say was far superior in tuberculosis to cod-liver oil. Creosote is also, I think, useful, not for any specific effect upon the bacillus, but because of its power of lessening fermentative changes in the stomach.

I fear, however, that if we were to speak candidly to a tuberculous patient we should be obliged to say what the American lecturer said when invited to give an address to the undergraduates of Yale College on the points to which they must carefully attend if they wished to have a happy

and a successful career—"Young gentlemen, if you wish to have a long and prosperous life, the first thing about which you should be very careful is your ancestors."

ART. XIII.—*Tuberculosis of the Female Genital Organs.*^a

By SIR WILLIAM SMYLY, M.D. Dubl.; President of the Royal College of Physicians of Ireland.

ALTHOUGH tubercular disease of the female genital organs has long been familiar to pathologists, it is only within comparatively recent times that it has attracted the attention of gynæcologists, because until abdominal section and the frequent use of the curette and microscope came into vogue we were without the means of making a diagnosis during life.

It is now known that every part of the female genital canal as well as the ovaries are liable to become the seat of this disease. The Fallopian tubes are by far the most frequently affected portion, the uterus fairly often, the other parts rarely.

The frequency with which this disease is likely to be encountered in a given number of cases is difficult to determine, because published statistics vary immensely according to the care with which the material has been handled. If we take, for example, those collected by A. Martin, in his work on the diseases of the tubes, we find that von Winckel met with 182 examples of tubal disease amongst 575 autopsies on female subjects, of which five were tubercular. In like manner, Schramm reported 34 examples of tubercular tubes out of 3,386 female cadavers, which is about the same proportion of 1 per cent. Dönhoff, on the other hand, was able to detect the disease fourteen times in 509 female subjects, or nearly 3 per cent. The results obtained by the examination of specimens removed by operation show even a more marked diversity.

^a Read before the Section of Pathology in the Royal Academy of Medicine in Ireland, on Friday, February 16, 1906. [For the discussion on this paper see page 303.]

Thus, Martin 17 amongst 620 salpingotomies, or 2.7 per cent.; von Rosthorn, 5 per cent. Whitridge Williams found amongst the tubes removed in the Johns Hopkins Hospital during two years that 8 per cent. were tubercular. Menge examined twenty cases of pyosalpinx, and found by inoculation of animals and culture experiments that three were tubercular, or 15 per cent.

Whitridge Williams calls attention to the fact that out of eight of the cases found to be tubercular in Johns Hopkins Hospital only two were recognised as such at the time of operation, and that the other six would have escaped observation had it not been for the routine microscopic examination. As to the relative frequency with which the organs are affected, he estimates that the tubes are always involved, the uterus in 65 per cent. and the ovaries in about 40 per cent.

The manner in which the bacilli find their way to the female genital organs is more or less a matter of conjecture. They may do so in the blood, or by continuity of surface, either from the peritoneum or the uterus. Free bacilli might also pass from the peritoneal cavity into the tube just as the ovum does. It has been thought that they might also be introduced from below by coitus with males suffering from tubercle, and this opinion, which has been urged by Martin, Menge, Pozzi, and others, is supported by the fact that the disease occurs most frequently during the childbearing period of life, and also by the fact that the bacilli have been found in the seminal fluid of tubercular men. It has been urged against it, however, that it is highly improbable that the bacilli, which possess no power of progression, could possibly pass through the uterus and tube to the ampulla, which is the part most frequently affected; nor is it probable that they could be conveyed there by spermatozoa, because the lively movements of the latter would most certainly wipe them off. Lastly, the disease might be propagated from neighbouring organs.

Vulva.—Tuberculosis of the vulva has hitherto been

observed only in the form of an ulcer, and never as a primary affection. It is very rare, and but few cases have been reported.

Vaginal tuberculosis is also a rare affection and is usually secondary to uterine, but two cases have been recorded as primary, one by Thompson and the other by Friedländer, but the former is doubtful. The disease occurs as a greyish caseating ulcer on the posterior wall, with irregular sharply-defined margins, and surrounded by reddened infiltrated mucous membrane, in which miliary tubercles may be seen.

Uterine tuberculosis is a fairly frequent disease of the body of the uterus, but is rarely found in the cervix. It commences in the endometrium, a miliary tuberculosis being the initial lesion. But the disease is seldom discovered until it has advanced to caseation and ulceration. The interior of the uterus may be filled with caseous material, and where the os is occluded pyometra may result. As the disease advances the muscular tissue becomes involved and hypertrophied, leading to considerable enlargement of the organ.

A very interesting subject is the occurrence of tubercle in the mucous membrane of the pregnant uterus. Schmoel and Kochel found in a phthisical woman, who died four days after delivery, caseating tubercle involving almost the entire decidua, and in the infant, which died on the twelfth day, complete caseation of the suprarenal bodies. Westenhofer found a small tuberculous infiltration of the endometrium in a patient who had died of acute miliary tuberculosis after a five months' abortion, and Runge tuberculosis of the decidua basalis in a woman who died of the disease in the fourth month of pregnancy. It is certain, therefore, that both in acute and also in chronic phthisis a localisation may take place in the endometrium, but it is uncertain whether the ovum was implanted upon a diseased membrane or whether the latter became diseased subsequently, though the latter is more probable.

The probability of the fœtus being infected with

tubercle by the mother had been suggested by many authorities, but the fact that this actually occurred was first demonstrated by Schmoel and Birch-Hirschfeld, who found in a foetus which had been removed by Cæsarean section from a woman who had died of miliary tuberculosis, tubercle bacilli in the vessels of the umbilical cord and in the capillaries of the liver. A tubercular infiltration was also discovered in the placenta. Thiercelin and Londe found advanced tuberculosis of the liver, spleen, and kidneys of a four-day-old child whose mother was tuberculous; and Lehmann found all the evidences of tuberculosis, excepting the bacilli, in a placenta involving the decidua basalis and chorionic villi.

It is remarkable, however, considering the vast number of tubercular mothers, that so few cases of foetal infection should have been reported, and it would appear, therefore, that in general the placenta acts as an efficient and impermeable filter for tubercle bacilli, or that the unborn child affords an unfavourable soil for their development.

Tubal tuberculosis occurs in an acute and a chronic form, both tubes being as a rule affected. In the latter the tubes are enlarged and twisted, feel hard and noduled; the ends become closed, and a pyosalpinx forms. The contents may be fluid, thick or cheesy. The microscopic appearances resemble those produced by tubercle in other parts. In the acute form there is a proliferation of round cells mixed with tubercle, but few giant cells, and the mucous membrane rapidly degenerates into a detritus mass. In the chronic form there is a development of tubercles which caseate slowly, the epithelium is shed, and the folds of mucous membrane grow together, often forming retention cysts. The muscular coat is greatly thickened by inflammation and development of fibrous tissue. The peritoneal covering is often studded with numerous tubercles; giant cells are formed, but very few bacilli.

The symptoms produced by genital tuberculosis in the female are those usually met with in inflammation of

these organs—namely, pain, leucorrhœa, and irregularities of menstruation, but they present no peculiar features by which a diagnosis could be formed.

Physical signs.—Almost the same must be admitted with regard to the objective signs. The appearance of tubercular ulcers of the vulva and vagina are, of course, characteristic, and the microscopic examination of the discharges and of particles removed by the curette will establish a certain diagnosis in uterine cases. But where, as is most usually the case, the disease is situated in the tubes, a probability of the conditions being of a tubercular nature is the nearest that we can get to a diagnosis until the parts have been removed and examined by a pathologist.

In endeavouring to arrive at a clinical diagnosis, the history of the case, the presence of the disease in other organs, the general condition of the patient, and the presence of ascites are important. There is nothing peculiar about the shape of the distended tubes, although a peculiar thickening of the uterine end (salpingitis isthmica nodosa), to which importance has been attached by Hegar, is much more common in tubercular than in other forms of sactosalpinx. And lastly, and especially if, in addition to the foregoing signs, nodular thickenings are plainly to be felt on the folds of Douglas, the condition present may be assumed to be very probably, but by no means certainly, of a tubercular nature.

As regards treatment in its early stages, the disease may be treated constitutionally, but in all advanced cases the total removal of the organs involved is the only rational procedure, but such operations are amongst the most difficult and dangerous in surgery, because the disease is often found to have implicated neighbouring organs, and so intestinal and urinary lesions of an incurable nature are not infrequently encountered, and the unfortunate patient is left to the horrors of a life-long urinary or fæcal fistula.

ART. XIV.—*Some Points in the Pathology of Abdominal Tuberculosis.** By EDMOND J. McWEENEY, M.A., M.D., R.U.I.; F.R.C.P.I., D.P.H., M.R.I.A.; Pathologist to the Mater Misericordiæ, Jervis Street, Coombe, and National Lying-in Hospitals, Dublin; Professor of Pathology and Bacteriology, Catholic University, Dublin.

IN the time allotted it is difficult to deal adequately with any one aspect of so vast a subject as abdominal tuberculosis. I shall begin by stating my own experience on some points to which my attention has been frequently directed, and then, should time allow, I propose to sum up the conclusions to which recent investigation seems to be leading us in this department. My own experience is far from being as extensive as it ought to be, considering the number of autopsies which I perform. This is because at the hospitals with which I am connected we rarely—save in the acute miliary variety—see the end of tubercular cases. I shall sum up my experience of urine-examination in tuberculous disease of the genito-urinary tract by saying that, roughly speaking, I find the tubercle bacillus present in about four-fifths of the cases in which purulent urine is passed with a distinctly acid reaction. They are usually found quite readily in the centrifugal sediment, needing no special device for their detection. They are nearly always agglutinated. This I would ascribe to the saline concentration of the urine. Since we have begun to concern ourselves with opsonic indices we have learnt that “normal” and more highly concentrated saline solutions agglutinate the tubercle bacillus. The pus of tuberculous urine is composed, not of mono- but of poly-nuclear leucocytes—contrary to what one might expect from the fact that in the tissues the tubercle bacillus seems to exercise little or no attractive influence on the polynuclear variety. The prevailingly polynuclear character of the pus in tuberculous urine I would account for by supposing that not only

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are the bacilli agglutinated but that some of them are plasmolysed, and their protein contents diffusing out into the tissues exercise their well-known attractive influence on the polynuclear elements.

I shall next refer to a peculiar variety of tuberculous lesion of the bowel, which I shall call hypertrophic tuberculosis. It occurs chiefly in the ileo-cæcal region, but may, as in the specimen I now exhibit, extend up to the hepatic flexure or even beyond it. The lumen is stenosed and the walls are excessively thickened by a hypertrophy of the intrinsic muscle and by dense infiltration with embryonic cells which leads to a remarkable new formation of fibrous or fibro-adipose tissue. The resemblance to cancer is quite remarkable, and would mislead even an experienced pathologist. The mucous aspect of the bowel is ulcerated, and presents polypoid or papilliform projections. On microscopic examination the ulcerated surface presents no trace of the glandular layer, but is covered with a layer of granulation tissue the cells of which are mostly mononuclear. Scattered or in groups throughout this tissue are astonishing numbers of tubercle bacilli, many being intracellular. There is here no evidence of either caseation or tubercular structure, but towards the serous aspect typical tubercles may be present. All these points can be made out under the several microscopes which I have placed in position. The anatomy of this variety of intestinal tubercle is thus seen to be absolutely distinct from the ordinary tubercular ulceration of the bowel met with in consumptives who have swallowed their sputum, and I should be inclined with diffidence to account for the difference on the supposition that the hypertrophic form, tending as it does to cell proliferation rather than to cell death, is caused by *slightly virulent bacilli of bovine type*. Since Koch's famous pronouncement on this subject in July, 1901, an enormous amount of work has been done, not only by private investigators but by Government Commissions appointed *ad hoc*, more especially in England, Germany, and the United States. I may sum up the

general impression left upon my mind by such of that work as has come to my knowledge, more particularly by the experimental results brought forward at the Tuberculosis Congress held in Paris last October, by saying that so much of Koch's position as is based upon the non-virulence of bovine tubercle for the human race seems to me in the light of recent research to be untenable. Not only do the results of the English Commission seem to point that way but also those obtained in America by Ravenel seem conclusive against Koch's view. Great importance must, moreover, be accorded to the results of the German Governmental Commission, manned as it is by personal friends of Koch and members of his school under the leadership of that eminent bacteriologist, Prof. Kossel. Out of some fifty cases of human tuberculosis which this Commission investigated they found bacilli of bovine type in six, all of which appeared to be of alimentary origin, and two of which were cases of generalised miliary tuberculosis. This proves that the most virulent type of the disease may be occasioned in the human race by bacilli derived from the cow, unless indeed we prefer to assume, as certain almost superstitious believers in Koch actually do, that these cases were mixed infections— the intestinal affection being due to bovine, and the generalised miliary element to human tubercle bacilli! So much for the moment about Koch's denial of virulence (as regards the human subject) to bovine bacilli. The other portion of his dictum—viz., that human tubercle is overwhelmingly respiratory in origin—has been vehemently called in question by von Behring, who has warmly championed the alimentary origin of the disease. He bases his view on the observed fact that anti-toxins, which are bodies consisting of molecules too large to pass through the intestinal wall of adults, are absorbed unchanged by young animals. He found, moreover, that large bacilli, such as those of anthrax, can pass unaltered through the intestinal epithelium of sucklings. From this and other considerations based on the statistical prevalence

of tuberculosis, which time does not permit me to enter on now, von Behring draws a conclusion the very opposite to of Koch—viz., that infection with tubercle nearly always occurs during infancy, and is due to the *ingestion* of bacilli.

Behring's view failed to meet with acceptance from the most experienced clinicians. Yet it has within the last few months received confirmation from an unexpected quarter—the school of Pasteur. Calmette, who is Director of the Pasteur Institute at Lille, and well known for his researches on snake venom, finds that kids which have imbibed the milk of udders that have been artificially infected with tubercle bacilli gradually waste away, and after death are found to have enormous foci of disease in the mesenteric glands as a rule, but *exceptionally pulmonary tuberculosis develops without obvious lesion of the gastro-intestinal mucosa or of the glands*. By a study of the effects of introducing cultures of virulent bacilli into the *rumen* of *adult* goats, Calmette was led to conclude that in adult animals, owing to greater permeability of the mesenteric filter, pulmonary tuberculosis is the *usual* result of gastric infection, and he even goes so far as to attribute the fresh outcrop of tubercles so often seen round older lesions in the lungs of consumptives to absorption of swallowed bacilli and their entrance into the blood current *viâ* the thoracic duct. Calmette concludes that adults are more prone to lung-infection by the intestinal route than are children, and that consumptives should be warned against the danger of swallowing their expectoration, and should be instructed in the hygiene of the mouth.

Two of Calmette's pupils tested the effect of introducing finely-divided inert pigment into the gastro-intestinal tract of animals, and found that in sucklings it was stopped in the mesenteric glands, whilst in adults it passed through these and was at once deposited in the lungs. They came to the conclusion that pulmonary anthracosis is mainly due not to *inhaled* but to *swallowed* carbon. The

pendulum has thus swung round again to a belief in the danger of alimentary infection, and the tendency of the instructed legislator will, therefore, be not only not to relax but to increase the stringency of regulations made with a view to its prevention.

ART. XV.—*The Surgical Aspect of Abdominal Tuberculosis.**

By T. E. GORDON, F.R.C.S.I.; Surgeon to the Adelaide Hospital, Dublin.

DURING the few minutes at my disposal I will endeavour to show what are the limits of surgery in the treatment of abdominal tuberculosis and to show what I think are likely to be some of the changes which will be effected by the new tuberculin treatment.

I cannot imagine any surgeon, at the present time, selecting abdominal tuberculosis as a subject for general discussion. We have few triumphs to record, and I am not aware of any remarkable advance which has been made during the last few years. It is only in its relation to the tuberculin treatment that the surgical aspect is likely to interest the meeting.

Tubercular peritonitis may for my present purpose be simply divided into an ascitic and a fibrous form. The latter includes many varieties, but they merge into one another. I have not myself met with a case of fibrous form in which there was not some evidence of caseation or chronic abscess formation. It is matter of common knowledge that the results of simple laparotomy as a treatment for the ascitic form are generally good, but they are not invariably so. I recollect a case of what I may almost call acute peritoneal tuberculosis, for the history was short, and the patient, a little girl, had a temperature sometimes reaching 103°. Laparotomy in that case was a signal failure. But apart from such exceptional cases as

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this the results of surgical treatment in the ascitic form are undoubtedly good.

It is otherwise with the fibrous form. It is difficult to believe that an operation can benefit cases in this group except those in which there is a localised chronic abscess; and even here I think it most unlikely that a cure will be effected by surgery, *per se*. It is more likely that the disease will continue active and an incurable intestinal fistula form.

I may incidentally remark that such chronic abscesses are not very uncommonly a source of diagnostic error. I have known them mistaken for sarcoma, and I have also met with the reverse mistake. A determination of the opsonic index will doubtless enable us to avoid such mistakes in future.

A cure appears to have followed operation in a few very hopeless-looking cases of general fibrous and caseating tuberculosis, but it seems more reasonable to suppose that such cure was *post hoc*. In a general way so unsatisfactory are the results, so real the danger of operation eventuating in fistula, that a surgeon, in my opinion, would be fully justified in refusing to interfere.

Now, what results can we reasonably hope may be effected by Wright's treatment? As bearing upon this let me read you the account of a case treated by injection of tuberculin (without reference to the opsonic index) by my colleague, Mr. L. G. Gunn.

L. N., aged twenty-one, unmarried. Four years before admission patient had a tubercular toe removed. Up to May, 1905, she had menstruated regularly every month. In May she got a feverish attack said to be influenza. From this time on the menses ceased and the lower part of her abdomen began to swell rapidly. She was admitted to the Adelaide Hospital on July 21st. There was then a swelling the size of a six months' pregnancy in and rising out of the pelvis. A small uterus could be felt in front of this tumour, which was thought to be possibly ovarian. Her temperature was hectic—about 103° at night. Her condition very bad when, on August 2nd, her abdomen was opened by

Sir William Smyly. The tumour was adherent to the abdominal wall, and was opened. A quantity of tubercular pus flowed out. It was impossible to make out with certainty the origin of the abscess, whether the ovary, the tube, or in connection with the intestine, or a mesenteric gland. The girl's extremely bad condition precluded any attempt at an extensive operation. In consequence, the cavity was merely packed with gauze after a thorough washing out. Quantities of pus kept discharging from the wound. Her temperature still hectic, as a rule rising to 102° or 103° at night. Strength did not return, and wasting continued until, at the end of nine weeks, her condition was about as bad as it could well be. Injections of Koch's "new tuberculin" were then begun, and twenty-two injections given, beginning with the $\frac{1}{80}$ of a milligram and rising to $1\frac{1}{2}$ milligrams. The tuberculin was given as a rule every second day. The dose increased if there had been no rise of temperature after the preceding inoculation. Almost at once improvement began to show itself—the night temperature lower, the amount of discharge much less, her appetite improved, and she began to put on flesh. On November 17th she and a medical patient on the same landing suddenly developed diphtheria. In consequence of this, tuberculin treatment was stopped for four weeks. During this time the discharge became much worse, and temperature began to rise again. On December 16th the injections were begun again, and after four inoculations of $\frac{1}{2}$ a milligram the discharge almost ceased and the temperature came down to normal. During the next three weeks $\frac{1}{50}$ of a milligram was given once a week. She was then sent out to the Convalescent Home. She returned after a fortnight; the wound was quite healed, she was back to her normal weight, and able to walk about a little without being tired. She was given a final $\frac{1}{50}$ of a milligram, and sent home to the country.

This result is convincing, and we may reasonably look forward to many similar successes by the more precise method of Wright. But here I wish to ask an important question. Are we correct in describing such a result as a cure? I think not, for the fibrous deformity of intestine and peritoneum remains. In cases of localised abscess such deformity may not do any harm, but where the

disease is extensive, where the intestines are extensively matted together by fibrous tissue, the cure of the tubercular element would still leave the patient to suffer from one of the most troublesome of abdominal affections—a condition which frequently causes distressing symptoms, and which may even prove fatal by inducing an intestinal obstruction.

TUBERCULOUS GROWTHS IN WALL OF INTESTINE.

I now refer to a class of case which I think is rather uncommon. In these the disease originating as a tubercular ulcer gives rise to much fibrous overgrowth, so as to suggest to the naked eye a true tumour of malignant type. It has its chief importance as a cause of obstruction. There are three principal methods of operating for these conditions—*i.e.*, complete excision, short circuiting, and occlusion. It is rarely that the local conditions allow of complete excision, though occasionally a brilliant operation has been performed with success. Short circuiting, of course only palliative in its aim, is the usual procedure. I recollect eight or ten years ago a case of chronic obstruction in an old man who had also chronic phthisis. I found two tumour-like masses in his lower ileum. I made a lateral anastomosis, joining together healthy intestine above and below these masses. The man was relieved for a time, but after some months he again came under my care with a return of obstructive symptoms and an increase in cough. He died, and at the autopsy we found five distinct tuberculous masses in parts of the small intestine far remote from one another. This was a specially unfortunate person, but ultimate recovery is unlikely to follow a short circuiting operation under any conditions.

It is clear that tuberculin treatment can never replace surgery in such cases as these, but it seems possible that by its use as an after-treatment what was only palliative may become curative.

Of the rarer forms of tubercular disease of the alimentary tract I have but little to say. I have never met with

an example of tubercular appendicitis, and it is certainly very uncommon, though we know it may occur. We have had a case of what was almost certainly tubercular disease of the stomach at the Adelaide Hospital. This is of course also a rare event, but I am inclined to think that some of those cases of chronic ulcer which we now not very uncommonly seen in the operating theatres, in which there is much thickening round the ulcer, may possibly be of a tubercular nature. At all events, I would suggest the advisableness of not assuming that they are of a simple nature.

Now I shall only ask you to allow me to summarise. We surgeons meet with tuberculosis more or less often in every part of the alimentary tract from the tip of the tongue to the anus. The cases which we are able to cure by operation are few. Our best results are in cases of ascitic tubercular peritonitis, but even in these I think the degree of success is less than is generally stated. The result of operation in the fibrous form is almost uniformly bad.

Where tubercular disease causes chronic obstruction the operation performed is, as a rule, but palliative.

Looking forward, we may with reason hope for better results, aided by tuberculin. Still it seems improbable that here the new treatment will have its greatest triumph, for neither in fibrous peritonitis nor in intestinal obstruction can it be expected to remove the mechanical disablement caused by the tubercular disease.

ART. XVI.—*The Opsonic Index in relation to Tuberculous Peritonitis.* By ARTHUR H. WHITE, Professor of Pathology, Royal College of Surgeons in Ireland: Pathologist to the Meath Hospital and to Cork Street Fever Hospital, Dublin.

A. E. WRIGHT has shown that there is present in the blood a protective substance hitherto unknown, which he calls *opsonin*, to the presence of which phagocytosis is largely

* Read before the Section of Pathology in the Royal Academy of Medicine in Ireland, on Friday, February 16, 1906. [For the discussion on this paper see page 303.]

due. He has also shown that the blood in cases of local tuberculosis contains less *opsonin* than the blood of normal people—that it to say, that the opsonic index is lower than normal, and, further, that the amount of opsonin may be increased, or, in other words, the opsonic index may be raised, by the inoculation of a tubercle vaccine. He has demonstrated how such inoculations are to be made with the best results, and how the maximal degree of immunity may be obtained by minute doses given at intervals determined by the study of the opsonic index. He proved by the marvellous results of treatment conducted on such lines that in raising the opsonic index and keeping it steadily at the normal, or at a higher, level by suitably interspaced inoculations improvement and ultimately complete cure of local tuberculosis results.

It is recognised by physicians, and occasionally even by pathologists, that the surgeon cures some cases of tuberculous peritonitis by washing out the peritoneal cavity. Like many instances in which empirical treatment has been adopted, no adequate explanation could be furnished. My object now is to show how Wright's work explains why such cases get well and why so many similar cases improve for a time and subsequently relapse.

The operation of opening and washing out the abdomen of a patient suffering from tuberculous peritonitis does two things. In the first place, it gets rid of the fluids which bathe the local lesions, and which are relatively poor as compared with the blood in opsonin, so that after the operation these fluids are, through the necessary subsequent exchange which occurs between the blood and the locally infected area, replaced by fresh fluids containing a relatively larger amount of opsonin and other protective substances. The results set forth in Table I. fully support both portions of this statement. The second great effect of the operation, which is partly shown in the latter examples given in Table I., and well shown by Table II., is that, generally speaking, a rise in the opsonic index of the blood results. This is due to the auto-inoculation which takes place in part as a consequence of the disturbance of

the infected area,* and in part because during the exchange already referred to, which occurs between the tuberculous area and the blood, bacterial products from the former are probably carried into the general circulation. From such auto-inoculations effects result similar to those obtained by the inoculation of tubercle vaccine. Should the dose be large a fall in the index occurs—i.e., a “negative phase” results—and this in turn is followed by a rise which lasts for a variable period. On the other hand, should the dose be a small one, there may be no negative phase, but an immediate rise, as in the case of the inoculation of a small dose of tubercle vaccine. Taking the opsonic index as a measure—it may be only a rough one—of the immunising influences at work, the truth of Wright’s statement, that cure is effected in those cases of local tuberculosis when the index is raised and steadily maintained for a sufficient period at a high level, can readily be accepted. The study of results given in Table II., which sets forth the effect of operation on the opsonic index of a number of cases, shows that after operation there is sometimes a negative phase which is followed by a rise; that sometimes the rise is immediate, and that the period during which the rise is maintained is variable. Clinically, those cases (e.g., S. C. and D. R.) with a rising index were cases which improved, and those with an index which fell or did not rise (e.g., F. S. and P. G.) were cases which improved but slightly or not at all. Hence one can conclude that certain cases of tuberculous peritonitis get quite well because a high index is maintained for a sufficiently long period, and that relapses occur in other cases because the index falls long before the period necessary for the *opsonin* and other protective substances to destroy the bacilli. Such cases simply improve during the time of the high index, and then, when the quantity of opsonin diminishes to the low level natural to the patient, relapse occurs (see Table III.).

In the event of this explanation proving true, and know-

* Massage of a tuberculous focus produces a rise in the opsonic index.

ing that it is possible to raise and maintain the opsonic index at a high level by suitably interspaced inoculations, the question may be asked: "Are operations to be performed in future in such cases?" I certainly think so, as they furnish the only or best means of getting rid of the fluid poor in opsonin and promoting the necessary exchange. It must, however, be borne in mind that the raising of the opsonic index before operation by inoculation will give a replacing fluid for the local lesion richer in opsonin, and, at the same time, enable the patient to withstand better the "negative phase" portion of the probable auto-inoculation which will result from the operation. Then again, as relapses frequently occur, the after-treatment should include occasional blood examinations to determine when the opsonic index begins to fall, and from that time on suitable inoculations, properly interspaced, should be given until the patient's local condition quite heals.

TABLE I.

	Opsonic Index.			
F. S. Tuberculous Peritonitis—				
Blood serum	-	-	-	.80
Peritoneal fluid	-	-	-	.61
F. G. Tuberculous Peritonitis and Pulmonary Phthisis—				
Blood serum	-	-	-	1.22
Peritoneal fluid	-	-	-	.95
S. M. Tuberculous Peritonitis—				
Blood serum	-	-	-	.53
Peritoneal fluid	-	-	-	.28
P. G. Tuberculous Abscess (First Evacuation)—				
Blood serum	-	-	-	.38
Pus serum	-	-	-	.08
(Second Evacuation, 17 days later)—				
Blood serum	-	-	-	.72
Pus serum	-	-	-	.57
D. R. Tuberculous Abscess (First Evacuation)—				
Blood serum	-	-	-	.33
Pus serum	-	-	-	.04

				Opsonic Index.
(Second Evacuation, 7 days later)—				
Blood serum	-	-	-	.62
Pus serum	-	-	-	.57

TABLE II.

				Opsonic Index of Blood.
D. B. Tuberculous Glands removed—				
14 days after operation	-	-	-	1.
24 " "	-	-	-	1.12
31 " "	-	-	-	.44*
34 " "	-	-	-	.40
L. M. Tubercular Kidney removed—				
45 days after operation	-	-	-	1.24
52 " "	-	-	-	.97
59 " "	-	-	-	1.07
66 " "	-	-	-	1.07
69 " "	-	-	-	.79
73 " "	-	-	-	.82
F. Tubercular Glands removed—				
3 weeks after operation	-	-	-	1.25
S. C. Excision of Tuberculous Ribs—				
2 days after operation	-	-	-	.70
7 " "	-	-	-	.93
14 " "	-	-	-	1.20
18 " "	-	-	-	1.22
P. G. Tuberculous Hip—				
Day abscess was evacuated	-	-	-	.38
3 days after evacuation	-	-	-	.65
7 " "	-	-	-	.38
10 " "	-	-	-	.50
14 " "	-	-	-	.34
D. R. Tuberculous Abscess from Spine—				
Day abscess was evacuated	-	-	-	.33
3 days after evacuation	-	-	-	.22
7 " "	-	-	-	.62
10 " "	-	-	-	.73
14 " "	-	-	-	1.03

*Immediately before this the wound, which had not healed, became ulcerative in character and two other glands enlarged. Subsequently these glands disappeared again, and the whole wound healed under treatment with tubercle vaccine.

		Opsonic Index of Blood.	
17 days after evacuation	-	-	1.08
21 " "	-	-	1.31
24 " "	-	-	1.39
28 " "	-	-	.81
F. S. Tuberculous Peritonitis—			
Day of operation	-	-	.80
5 days after operation	-	-	1.03
9 " "	-	-	.93
12 " "	-	-	.70
16 " "	-	-	.48

TABLE III.

Cases of Tuberculous Peritonitis which had been operated on and which relapsed.

J. M.—Operated on 1½ years previously	-	-	.80
J. M.K. " 9 months previously	-	-	.50
B. D. " 11 " "	-	-	.53
J. H. " 12 " "	-	-	.50

NOTE.—The opsonic index, in a case which appeared to be perfectly well as the result of an operation two years previously, was 1.2.

LITERARY NOTE.

A BOOK of interest to the Medical Profession particularly, now in the Press, is entitled "On Leprosy and Fish-Eating." The author is Mr. Jonathan Hutchinson, formerly President of the Royal College of Surgeons of England. The work comprises statements as to the history of leprosy, its nature, its prevalence in different countries, and the conditions under which it has disappeared from many. Facts are brought forward to show that it is not ordinarily contagious, and that its real cause is the use as food of badly cured fish. There are chapters on the influence of sex in relation to leprosy, of religious creed, and poverty. An account is given of the author's tours in South Africa and India, and the measures taken in those countries and elsewhere for suppression of leprosy are fully discussed. The volume contains maps and illustrations, and is published by Messrs. Archibald Constable & Company, James Street, Haymarket, London, S.W.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

RECENT WORKS ON PHYSIOLOGY.

1. *A Manual of Physiology, with Practical Exercises.* By G. N. STEWART, M.A., D.Sc., M.D., &c., &c. Fifth Edition. London: Baillière, Tindall & Cox. 1906. Pp. 911.
2. *A Text-book of Physiology for Medical Students and Physicians.* By WILLIAM H. HOWELL, Ph.D., M.D., LL.D. Philadelphia and London: W. B. Saunders & Co. 1905. Pp. 905.
3. *Recent Advances in Physiology and Bio-Chemistry.* Edited by LEONARD HILL, M.B., F.R.S. London: Edward Arnold. 1906. Pp. 740.
4. *Laboratory Manual of Physiology.* By FREDERICK C. BUSCH, B.S., M.D. London: Baillière, Tindall & Cox. 1906. Pp. 206.

1. THE fifth edition of a work which appeared first in 1896, and the fourth edition of which has been reprinted four times, is scarcely a subject for criticism. Its reputation is established. It has demonstrated that it supplies a want. We have had frequently occasion to speak in terms of praise of the successive editions of Professor Stewart's manual as they appeared, and little remains for us now but to announce the issue of the fifth edition and to congratulate the author on the continued success of his work. The distinguishing feature of the book is, we think, to be found in the practical exercises given at the end of each section, so that the work is not only a text-book but also a laboratory guide. Whoever reads the text and works through the exercises will have more than a fair knowledge of physiology. Since the appearance of the fourth edition in 1900 physiology has made considerable advances in many directions, and we can see everywhere

marks of revision and in many places considerable additions of new matter. These additions are to be found chiefly in the chapters on the blood, digestion, and central nervous system. Thus we find under blood an account of hæmolysins, agglutinins, precipitins, and a greatly extended and revised account of coagulation, in which the most modern views are fully given. In the chapter on digestion we find an account of the work of Pawlow and his school; the ferments, secretin, entero-kinase and erepsin; and many new diagrams, among them one illustrating the changes in shape of the stomach as investigated by means of the Röntgen rays. An account of the oxidative ferments or oxidases is given in the chapter on respiration; and in that on the central nervous system we find Sherrington's and Grünbaum's work on the brain of the chimpanzee, and Flechsig's developmental researches. These are but a few of the additions, for nearly every page bears marks of revision and improvement. The number of illustrations has been increased from 336 to 395, and, notwithstanding all the additional matter, the size of the volume is scarcely increased, the number of pages being only 911 against 894. This has been made possible by the employment of a somewhat smaller type, which, however, leaves nothing to be desired in point of clearness and legibility. We can confidently say that among the many text-books of physiology now before the public there are very few which for completeness, accuracy, and compactness can compare with Stewart's manual.

2. THE second work is a new candidate for popular favour, and comes recommended by the name of its author, one of the most distinguished of American physiologists. Professor Howell's work is a handsome volume, well printed, abundantly illustrated, not only with diagrams and figures in the text, but with admirable plates, many of which are coloured. The attitude of mind of the author in writing his book is best given in his own words. "In the preparation of this book the author has endeavoured to keep in mind two guiding principles—first, the importance of simplicity and lucidity in the presentation of facts and theories; and second, the need of a judicious limitation of the material selected." In this limitation he has to use his judgment and accept the

responsibility, and he prefers rightly to limit his material by a process of elimination rather than by condensation.

The work is divided into nine sections and fifty-four chapters. The subjects are taken in the following order:—Muscle and nerve; central nervous system; special senses; blood and lymph; circulation of blood and lymph; respiration; digestion and secretion; nutrition, heat production and regulation; reproduction. There are two useful appendices—one on proteids and their classification, the other on diffusion and osmosis.

The treatment of the subjects is excellent, but everywhere bears evidence of the principle of limitation indicated in the preface. On some of these limitations opinions may vary, but there can be no doubt that the work is a comparatively easy one to read, and that any student who masters its contents will have a good knowledge of physiology.

We may indicate, at random, a few of the opinions of the author. He holds that diffusion alone is sufficient to explain the gaseous interchange in the lungs. He admits that the respiration is regulated by the vagus in so far that expansion of the lungs stimulates the inhibitory fibres of the vagus, which he considers to be proved by the current demonstrated by the capillary electrometer in the vagus at each inspiration, but he denies that collapse of the lungs stimulates any fibres in the vagus. He does not notice the work on this subject of Alcock and Seemann. We may notice that the results of these experimenters are noticed and accepted by Stewart. A good account of the enzymes is given in the section on digestion, and their reversibility and the question of their specificity are dealt with. The formation of lymph is explained by filtration, diffusion, osmotic pressure; and the different flow in different parts is accounted for by a difference in the permeability of the capillary walls. On the whole we think that the work is written with great judgment, and represents with every fairness the tendency of modern physiological thought and the best results of recent research. It cannot fail to enjoy on both sides of the Atlantic the popularity which it so well deserves.

3. In the ordinary text-book of physiology all the subjects are

treated in relation to their scientific rather than to their practical importance. Many of them to which a considerable space is given have very little bearing as yet on the practical work of the physician or hygienist, while others, whose importance is immense, do not receive the fulness of treatment which that importance merits.

The design of the volume before us is, the editor tells us, "to set before the student of medicine the progress made in those branches of physiological study which have an immediate bearing on pathology and therapeutics, and to thereby give him an insight into the methods of research, and a training in the processes of deduction, which cannot be gained from the bare and unstimulating outlines of the textbook."

"The Editor hopes that the book will also be of value to the clinician who wishes to realise the views of the chief European and American authorities on such subjects as—diabetes; uric acid metabolism; hæmolysins and immunity; mountain sickness, caisson sickness, and oxygen as a therapeutic agent; the metabolism of fat and treatment of obesity; the influence of temperature and relative dryness of the atmosphere, of work, diet, baths, clothing, &c., on metabolism; the causation of dyspnœa and of Cheyne-Stokes respiration; the influence of the thyroid and suprarenal glands on metabolism; the action of the digestive ferments; catalysts and chemical excitants; the colloidal structure of living matter, and the influence of electrolytes in solution—a subject of immense importance to therapeutics; the formation and absorption of lymph; the urinary secretion, and so forth."

This is a pretty extensive list of subjects, and there will be few of our readers who will not feel a desire to know from authorities such as the writers of this book the last word which can so far be said on some of them. These writers are five in number, and each treats of subjects on which he is a recognised authority, and to the elucidation of which he has contributed by his own work.

Professor Benjamin Moore is the author of the first six chapters. He contends strongly for a form of energy peculiar to living matter which he calls biotic energy. As regards the

relation of this to other forms of energy, such as are manifested by dead matter, he says :—

“The conception, in brief, is that biotic energy is just as closely, and no more, related to the various forms of energy existing apart from life, as these are to one another, and that in presence of the proper and adapted energy-transformer—viz., the living cell—it is capable of being formed from or converted into various of these other forms of energy, the law of conservation of energy being obeyed in the process just as it would be if an exchange were taking place between any two or more of the latter forms.”

The writer then goes on to enumerate the various properties of living matter which prove that it is a peculiar energy-transformer developing a peculiar form of energy. These are: the mode of production of living matter; the life cycle of the cell; heredity; the fundamental properties of living matter, irritability, contractility, and conductivity; metabolism; the osmotic phenomena of the cell; and he shows that all those properties require for their explanation a form of energy different from that manifested by dead matter.

In subsequent chapters Professor Moore treats of chemical transformations in living matter and its products; chemical equilibrium and reaction; enzymes and cells as catalysts or energy-transformers; velocity of reaction, and the comparative action of enzymes and cells; influence of other factors upon enzymes and cells. In this chapter he discusses negative catalysts, or those which increase the resistance, and so diminish the velocity of the reaction without themselves being changed in the reaction; anticatalysts which retard the reaction, not by acting on the substratum, but by a hindering action exerted directly on the catalyst; zymo-excitators or kinases, &c., &c. A great part of these subjects is treated mathematically, but it is quite possible for the non-mathematical reader to follow the demonstration. The fifth chapter is on the theories as to mode of action, of catalysts and enzymes; and this is followed by a most interesting and important chapter on secretion and glandular mechanisms. In this chapter we have a description of the hormones or chemical excitants of secretion, the best known example of which is the secretin, which, formed in the mucous membrane

of the duodenum, is carried by the blood to the pancreas, and there calls out the secretion of the gland, an action which was formerly supposed to be due to nervous influence.

It would be difficult to overestimate the value of this work of Professor Moore. It deals with the most fundamental questions in biology, and we do not know any other English book in which they are discussed with such lucidity and acumen.

The second writer is Professor Hill, the editor of the entire volume. He treats, firstly, of the atmosphere and the effects of diminished and increased atmospheric pressure on men and animals. Mountain sickness, balloon sickness, metabolism in high altitudes are fully discussed. Susceptibility to mountain sickness varies in different individuals, and depends on the depth of the pulmonary ventilation and vigour of the circulation and on the absorptive power of the blood, which may vary with both the quality and quantity of the hæmoglobin. All these factors may be modified by training. An untrained person runs great risk in climbing to a high altitude. The therapeutic value of mountain air is due to its purity from dust and bacteria, the bracing cold and intense insolation, the strengthening of the heart and respiratory mechanism, the increased respiratory metabolism and increased formation of hæmoglobin.

In the chapter on the influence of increased atmospheric pressure the effects of the increased oxygen tension are studied and the injurious influence which it exerts on the lungs is described. The continued action of oxygen above 100 per cent. of an atmosphere acts as a poison, producing inflammation of the lungs and convulsions. Very high pressures kill as if by asphyxia.

In speaking of metabolism under increased pressure it is shown that "oxygen inhalation cannot be used as a therapeutic agent to increase metabolism. Its only value is to supply sufficient O_2 when by reason of anæmia, CO poisoning, nitrite poisoning, &c., the tissues are not adequately supplied. Oxygen cannot do much good in cases of obstructed air-way, for CO_2 has to be got out of, as much as oxygen into, the blood. It can do no good if the circulation is too feeble to keep up the normal rate of supply to the tissues; there can be

little doubt, then, that most of the oxygen inhalations given to patients are useless."

The injurious and often fatal consequences of rapid decompression after exposure to high atmospheric pressure in caissons and diving bells are due to liberation of nitrogen bubbles in the blood, and may be avoided by a gradual lowering of pressure. The author finds that a decompression lasting two hours is safe after exposure to a pressure of eight atmospheres.

Dr. Hill further contributes two important chapters—one on the relation of water to metabolism and the regulation of body temperature; the other on the metabolism of fat. He discusses the digestion and absorption of fat, holding that it is all split in the intestine, and absorbed either as soap or fatty acid dissolved in the bile. The evidence for and against the formation of fat from proteid is fully weighed, and judgment is given against this source of fat. Carbohydrate and fat are the unquestionable sources. That body fat can be used as a source of energy is shown conclusively by the experiments of Atwater and others. "Less food and more exercise, and especially the latter, is the one and only remedy for fat people."

The third writer is Professor J. J. R. Macleod, who contributes three chapters. The first is on the metabolism of the carbohydrates and on diabetes. This gives a most admirable summary of our knowledge of this difficult and important subject. While direct evidence of formation of glycogene from proteid is wanting, the indirect method shows that proteid is a true source of carbohydrate. The weight of evidence is in favour of the transformation of glycogene back into sugar according to Bernard's theory. The destruction of sugar takes place by the action of a ferment in the muscles, activated by an internal secretion formed by the pancreas. The various kinds of diabetes are studied, but, unfortunately, we are still in want of methods of treatment.

In his second chapter Professor Macleod deals with the metabolism of uric acid and the other purin bodies. He begins: "Nothing is, perhaps, so bewildering in the whole of bio-chemistry as are the various hypotheses regarding the

metabolism of the purin bodies." This statement will be endorsed by every student of physiology and pathology; it is only the clinicians who seem quite sure about the subject. We would advise everyone to read this chapter, and we think that few who follow our advice will fail to have their ideas on uric acid made much more clear and scientific than they were before.

In the next chapter the same author discusses hæmolyins and allied bodies—agglutinins, cytotoxins, præcipitins, opsonins, &c. The famous side-chain theory of Ehrlich is illustrated by admirable diagrams, and its ingenuity and complexity are fully set forth. It is, however, consolatory to read "that although the side-chain theory is the only one which can be at present employed to explain all the intricate reactions and interactions of immune bodies, there possibly exists a much simpler relationship between them."

The fourth writer is Dr. Pembrey, who contributes a chapter on the respiratory exchange, and one on the internal secretions of the thyroid gland and supra-renal capsules. It would be impossible to praise too highly the lucidity, vigour, and liveliness with which these chapters are written. A more admirable account of the chemistry and physics of respiration is scarcely to be found. That the writer has a keen sense of humour as well as common sense is shown by such sentences as the following:—"Some men have as great a craving for regulating their own and other people's food and exercise as theologians have for uniformity of belief. Vegetarians, flesh-eaters, chewers, nitrogen economists, all bear witness to some portion of truth, but believe in the way characteristic of people with a mission that their little piece is the whole truth, and nothing but the truth." "The idea that a man should determine his diet by its chemical composition or caloric value is not only repugnant, but also unscientific. Likewise, it is impossible to lay down hard and fast rules for the amount and nature of exercise to be taken. The personal equation is the primary factor." As regards the much-vexed question of the gaseous exchange in the lungs, Dr. Pembrey thinks that this exchange is due partly to diffusion, partly to secretion. "Such a verdict may be un-

satisfactory to those who hold extreme views on either side, by both it may be considered a confession of weakness, but it is consonant with the evidence and the wider views of those who do not limit vitalism to the phenomena of living things alone."

The last four chapters in the volume are by Dr. A. P. Beddard, and treat of the production of lymph; the mechanism of absorption from the small intestine; the formation of urea; and the secretion of urine. There are few subjects which have been more discussed in recent years than the formation of lymph. All the recent work is carefully considered here, and the following conclusions are arrived at:—

"1. The formation of tissue fluid is determined by the metabolism of the tissue cells. The only exception to this is the fact that in order to keep the volume of the circulating blood constant fluid can be taken up from or given out to the tissue spaces.

"2. Tissue fluid is not secreted by tissue cells, but is poured out from the capillaries in obedience to osmosis, diffusion, and filtration, which in turn are controlled and determined by the degree of activity of the tissues.

"3. Tissue fluid is absorbed into the capillaries by a combination of osmosis and diffusion, but it is uncertain how these forces are brought into play.

"4. The cells of the capillary wall do not secrete tissue fluid. There is no evidence that they play any but a passive part in the formation and absorption of tissue fluid. Being living cells they possess a wholly unknown permeability, which might be constant or variable."

It will be seen that Dr. Beddard is not so ready to resort to biotic energy as Professor Moore is.

In connection with these conclusions and other passages in the book we would call attention to a note by the Editor, in which he propounds his opinion that such a thing as filtration pressure is impossible in the body. "In the case of a limb enclosed in the skin, or kidney enclosed in its capsule, the whole semi-fluid mass must be at capillary pressure, just as much as the brain and cerebro-spinal fluid are at capillary

pressure"—this he has determined experimentally. A filtration pressure can exist, in the Editor's opinion, only when the body is open at any point. If this be so a great deal of our physiological notions will require revision.

We regret that the limits of our space prevent us from noticing the remaining chapters by Dr. Beddard. They will all well repay perusal, and particularly that on the secretion of urine deserves the most careful study, not only by physiologists, but by physicians and surgeons.

In conclusion, we would express our high appreciation of the work of the authors of this book, and our hope that the Editor may receive sufficient encouragement to induce him to carry out his intention of editing a future volume in which other subjects may be similarly and as excellently treated.

4. In Dr. Busch's Manual directions are given for the performance of a large number of physiological experiments. Many of these experiments are of a comparatively simple character, quite suitable for class work, but others are, in our opinion, far too difficult for students, more particularly as in many cases the directions are by no means detailed enough to enable a beginner to carry out the different steps of the operations involved. For study without the aid of a master the book is useless, as the results which should be got from the experiments and the truths which these experiments should demonstrate are not given, but are left to the students' observation. In the arrangement of the matter the work is divided into eleven chapters, which deal, in succession, with unicellular organisms, algæ, fungi, protozoa, and with ciliary motion; muscle-nerve physiology; the central nervous system; the blood; the circulation; secretion, digestion and absorption; internal secretions; respiration; excretion; sensation; and vision. The last chapter is written by Dr. Lee Masten Francis. The text is illustrated by 47 figures, which are fairly graphic, although rather rough in execution. The book is well printed and has a good index. It will, no doubt, prove a valuable addition to the library of a physiological laboratory, and each teacher can select from it such experiments

as he considers suitable for his pupils; but we think that, at all events on this side of the Atlantic, it will never take the place of the many excellent laboratory manuals which have been written by English authors.

Practical Sanitary Science: A Handbook for the Public Health Laboratory. By DAVID SOMMERVILLE, B.A., M.D.; Lecturer in Public Health, King's College, London. London: Baillière, Tindall & Cox. 1906. 8vo. Pp. 310.

THIS is an excellent work, well adapted for those preparing for examinations for the Diploma of Public Health. It deals with the examination of water, air, soils, food, sewage and sewage effluents, and disinfectants. The processes described are well up to date, and the descriptions of them are clear and concise. There are a large number of illustrations showing micro-organisms in water, starches, and foods.

In reference to milk, the author takes 10 grammes for evaporation. We have found that 5 grammes suffice, and is a more convenient quantity to desiccate. The detection of preservatives in milk by the most recent methods forms a valuable part of this excellent treatise, which we most highly recommend.

Public Health Administration in Glasgow. A Memorial Volume of the Writings of JAMES BURNS RUSSELL, M.D., LL.D. Edited by A. K. CHALMERS, M.D.; Medical Officer of Health for Glasgow. Glasgow: James Maclehose & Sons. 1905. 8vo. Pp. 612.

As the fame of the late Sir John Simon was based on the work which he had performed—first, as Medical Officer of Health for the City of London; secondly, as Medical Officer of the Privy Council—so, too, does the fame of the late Dr. Russell rest nearly altogether on the services which he rendered to Glasgow, chiefly as its Health Officer, and, but to a far less extent, on his work as the Medical Member of the Scottish Local Government Board. Dr. Russell will not, however, be remembered only for his sanitary work. His contributions to literature having no relation to medicine or sanitation, though not numerou,

or extensive, prove that if he had devoted himself to pure literature he would have obtained a high position amongst the authors. He was animated with no small spark of the Promethean fire, as shown in his translations of Greek poetry. It is, however, with his career as a sanitarian that we have to deal, and that career is clearly shown to us in the book under notice.

A Preface by Sir William Gairdner, the predecessor of Dr. Russell as Medical Officer of Health, tells the circumstances under which Glasgow had the good fortune of securing Russell's services. Sir William says that the chief service which he rendered to Glasgow was "to have discovered Dr. Russell and placed him in the track of my succession." In 1872 Russell commenced his career of sanitary improvement in the great industrial Scottish city. Six years earlier its Corporation had obtained from Parliament an Improvement Act, but until Russell's advent its provisions had been almost a dead letter. The death-rate, general and zymotic, at that time was appallingly high, due to the overcrowded condition of the dwellings of not merely the poorest sections of the population, but even of the well paid artisan classes.

Russell thoroughly reorganised the Inspectorial Department, saw that the sanitary by-laws were better observed, and urged the absolute necessity of substituting for the purlieus, healthy dwellings. Every year of Russell's administration produced a good effect on the health of Glasgow. In the period 1865-1874 the mean death-rate was 30.5 and the zymotic death-rate 7.4 per 1,000 persons living. In the decade ended in 1894 the general death-rate had declined to 23.175 per 1,000 and the zymotic death-rate to 3.822. The deaths from phthisis, which were in 1865-1874 in the ratio of 39.4 per 10,000 persons living, fell in 1885-1894 to 24.58.

More than one cause may have operated to improve the health of Glasgow, but undoubtedly the really important one was the work of Dr. Russell and his staff.

The improvement in the health of Glasgow did not terminate with the year 1894, for, two years later, during which Dr. Russell remained in Glasgow, and up to the present time, under the able régime of Dr. Chalmers, Glasgow is becoming more and more healthy.

Dr. Russell devoted much attention to the subject of hospital accommodation, and many of his best papers relate to his hospital experience. His papers on typhus fever are of especial interest. Russell was an able statistician, and his papers as such are amongst the most valuable of his contributions to sanitary literature. Amongst those papers, that showing the influence of density of population on the death-rate is very interesting. His published papers in every department of sanitary science number 80.

In 1873 Russell published the first clearly demonstrated instance of an epidemic of typhoid fever caused by infected milk. It will always be a classic on that subject.

In 1898 Dr. Russell accepted the position of Medical Member of the Scottish Local Government Board, which he retained until his lamented death in 1905.

To all who are interested in sanitary reform and work, the volume, containing an account of Russell's public health administration in Glasgow, will afford profitable reading.

Acid Autointoxications: Being Part IV. of several Clinical Treatises on Disorders of Metabolism and Nutrition. By PROF. C. VON NOORDEN, Physician to the City Hospital, Frankfort-a-M.; and DR. MOHR. Translated under the direction of B. REID, M.D., Philadelphia. Bristol: J. Wright. 1904. Pp. 80.

It is but a very few years ago since the fact was first fully appreciated that human protoplasm could perform its functions only in an alkaline medium, and that if the blood lost its proper alkalinity life could not continue. This acid condition of the blood, first studied in cases of diabetic coma, has been found to occur in morbid conditions other than diabetes. When it occurs it shows itself clinically by acetonuria—i.e., by the excretion of acetone, and diacetic and oxybutyric acid in the urine. In diabetes the cause of this acidosis (as it is called) is obscure; it depends on unknown alterations in the body metabolism; but the tendency to it is undoubtedly increased by a diminution of the carbohydrates in the dietary. In non-diabetic cases Prof. von Noorden believes acetone-

uria to be caused wholly by insufficient absorption of carbohydrates. He quite rejects the view that the acidosis is due to changes in the organism produced by intestinal toxins—a view put forward by several investigators.

As regards treatment, he does not suggest anything except the usual administration of carbohydrates and alkalies.

The subject is an obscure, yet interesting and important, one; but we have been disappointed with this book. It appears to us to be confused and ill-written. It is not easy to arrive at the authors' conclusions, and it compares very unfavourably with some of Prof. von Noorden's other works. Three chemical formulæ are introduced—those of acetone, diacetic acid, and β oxybutyric acid—and two of the three are incorrect!

Wharton and Stillé's Medical Jurisprudence. Volume II. Poisons. By ROBERT AMORY, M.D., formerly Professor of Physiology, Bowdoin Medical College, &c.; and R. L. EMERSON, M.D., Instructor in Physiological Chemistry, Harvard University. Fifth Edition. Rochester, New York: The Lawyers' Co-operative Publishing Company. 1905. Pp. 858.

THE fourth edition of this well-known work was published in 1884. Owing to the great advances made since that date in all branches of medical science, it has of latter years ceased to occupy the important position which it once held. It was, therefore, necessary, in order to bring the book up to date and to make it a reliable exponent of present-day toxicology, to re-write a very great part of it. The Editors have spared themselves no trouble. They have succeeded in producing a modern, reliable, and, on the whole, a satisfactory work.

The properties of the various poisons, their symptoms, and the modes of treatment and of detection, are well described. In an appendix about 30 cases, which illustrate important medico-legal questions, are described at considerable length.

There is a short chapter on ptomain poisoning, but it is

in all respects very poor and quite unworthy of a place in a work of such importance. There is also a chapter on the detection of blood and seminal stains—it also is not particularly good. We quite fail to see what connection the detection of blood has with toxicology.

We regard the book as a useful and valuable work.

A System of Medicine by Many Writers. Edited by THOMAS CLIFFORD ALLBUTT, M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.A., F.S.A., Regius Professor of Physic in the University of Cambridge, Fellow of Gonville and Caius College; and HUMPHRY DAVY ROLLESTON, M.A., M.D., F.R.C.P., Physician to St. George's Hospital and to the Victoria Hospital for Children, sometime Fellow of St. John's College, Cambridge. Volume I. London: Macmillan & Co. 1905. 8vo. Pp. xvi + 1209.

WE welcome the appearance of the first volume of the second edition of "Allbutt's System of Medicine"—to use the name by which this great work has achieved a world-wide reputation as a text-book of medicine. For the future two names will be associated with the work, inasmuch as Dr. Humphry Davy Rolleston is now joint-editor with Professor Clifford Allbutt. Nine—nearly ten—years have elapsed since the corresponding volume of the first edition was published, and in their Preface the Editors point out that the life of a system or text-book of medicine is comparatively short. Hence it is proposed to revise and bring out one volume of the new edition each year, and in this way the original edition will be gradually superseded by the new, which is more than a mere revision.

The volume before us opens with three notable articles under the heading "Prolegomena." These are—"A History of Ancient Medicine," by Professor Clifford Allbutt; "Medicine in Modern Europe," by Dr. J. F. Payne; and "Medical Statistics," by Dr. John Tatham, Medical Superintendent of Statistics in the Office of the Registrar-General for England and Wales. All three articles are extremely learned as well as instructive.

In Dr. Tatham's masterly analysis of Vital Statistics, the

medical practitioner and the student of medicine alike will find much practical information, including particulars of the prevalence, local distribution, and fatality of the ailments which occur most frequently in practice. Among the infections Dr. Tatham refers especially to tuberculosis. He writes: "Of the numbers slain in conflict with this ruthless destroyer the death-registers give a fairly accurate account; but what of the thousands who, incapacitated for work by its ravages, go to fill our hospitals and our workhouses? The official records show that of the half-million or so of deaths occurring annually in England, not less than 11 per cent. are caused by tuberculosis. This terrible sacrifice of human life to the depredations of a clearly suppressible parasite is surely a matter for serious national concern. But not on that account alone does tuberculosis demand exceptional study. There is the further consideration that this disease selects its victims, not from the physically degenerate only, but from among the choicest of the race—destroying or maiming, in their early prime, thousands of bread-winning parents or guardians, whose lives, if spared, would have been of incalculable value to the community."

Tuberculosis falls most heavily on young children, the mortality within the first five years of life, chiefly from the abdominal and cerebral forms of the disease, being at the rate of 3.18 per thousand living at that age. After the fifth year the mortality falls suddenly, but it rises again after puberty, and in the period 20–25 years is equal to 1.61 per thousand. Subsequently it still further increases, reaching its maximum at the age 45–55 for men, and ten years earlier for women. Thence onwards to the close of life the death-rate in both sexes steadily declines.

Discussing malignant disease, the writer shows that, onwards from the earliest period regarding which official statistics exist, the record of cancer in England and Wales is an unbroken one of steadily increasing fatality. Within the half-century ended in 1903 the death-rate from cancer has more than trebled among males and more than doubled among females. It is a pity that Dr. Tatham practically confined himself to England and Wales in his statistics of cancer; particularly as the Registrar-General for Ireland has recently

made a special study of the prevalence and distribution of cancer in this country.

Pneumonia is one of the diseases the mortality from which would seem by the Tables to have increased considerably within the last quarter of a century. The recorded increase of late years, Dr. Tatham thinks, is to some extent apparent only—depending partly on changes of classification. Pneumonia is now classed among the “infections,” and therefore, when several causes of death are specified in a certificate, this disease is selected for statistical purposes in preference to other conditions still designated local, such as bronchitis, laryngitis, &c. This is, no doubt, the case, yet our experience in Dublin would go to show that pneumonia—that is, “pneumonic fever”—has of late years largely taken the place of typhus in the “Bills of Mortality.”

Included among the new articles in this first volume are two on the ever-attractive subject of “Fever.” They follow the historical retrospect, which came from the pen of the late Sir John Burdon-Sanderson, M.D., F.R.S., and in which that able if somewhat eccentric man of genius gave an account of the doctrines of fever enunciated by Virchow (1850) and his contemporaries and successors in the field of Pathology—Traube, Liebermeister, Senator, Leyden, Cohnheim.

Of the new articles, the first is by Dr. Marcus S. Pembrey, Lecturer on Physiology at Guy’s Hospital. It is entitled “Physiological Considerations,” and deals with the subject of fever under the following heads:—Temperature, Regulation of Temperature, Production of Heat, Respiratory Exchange as a Measure of the Production of Heat, Loss of Heat, Metabolism, Secretion and Excretion, Respiration, Circulation, Nervous System, Theory of Fever. In connection with the last point, there is an apt definition of fever at page 845—“Fever may be defined as a response in metabolism to the invasion of micro-organisms and a toxic disturbance of the nervous regulation of temperature.”

“If fever,” writes Dr. Pembrey, “be a response of the organism to the invasion of pathogenetic organisms, the question arises whether the high temperature may be beneficial, harmful, or indifferent in its effect upon the resistance offered by the infected subject. Opinion has been divided

between the extreme views ; according to the ancient view, fever is beneficial, a purification from the disease by means of heat ; the high temperature enables the animal to oxidise, antagonise, or destroy the injurious organisms or their products. A more modern school would look upon the high temperature as the enemy chiefly responsible for the evil effects produced by a fever, and on that account to be combated by cold and antipyretics. Upon philosophical and experimental grounds the old view is again receiving more and more support ; bacteriological investigations show that high temperatures (39° to 40° C.) arrest or attenuate the growth and virulence of many micro-organisms, and experiments upon animals show that a high temperature enables them to resist more successfully the effects of pathogenetic organisms. These views and their influence upon the treatment of fever are discussed elsewhere. From a physiological point of view the high temperature would appear only to be harmful when it is of such a height or so prolonged as in itself to endanger life."

The second new article on Fever is by Dr. W. Hale White, Physician and Lecturer on Medicine to Guy's Hospital. With the statements in this learned article we in the main agree, but we consider that the following sentence requires qualification :—"The onset of the pyrexia varies in different fevers ; thus, pneumonia and malaria are nearly always ushered in by a rigor, while in other fevers, such as enteric, rigors are very rare, and it is noteworthy that in children rigors are quite exceptional." It is, of course, true that—to quote Professor Dreschfeld in his splendid account of enteric fever in this same volume—"a single rigor, so characteristic of pneumonia, is rarely seen in enteric fever" ; but (as the Professor also writes) "the patient complains . . . of cold and chilly sensations," "repeated shivers, with headache and rise of temperature." Then, as regards children, our experience is that an initial convulsion often stands for what would be in an adult a rigor. At page 858 again Dr. Hale White has fallen into a strange mistake, when he writes : "Before the time of Dr. Todd, who 'fed fevers,' many patients were lost owing to the lowering treatment of fever which had been in vogue for many centuries." Surely Dr. Hale White remembers the incident told by William Stokes in his biography of

Robert James Graves.* Graves, who was physician to the Meath Hospital, Duolin, was going round the hospital, when, on entering the convalescent ward, he began to expatiate on the healthy appearance of some who had recovered from severe typhus. "This is all the effect of our good feeding," he exclaimed; "and lest, when I am gone, you may be at a loss for an epitaph for me, let me give you one in three words:— 'He fed Fevers.'" Robert Todd was an Irishman as well as Graves; not to him, however, but to his great countryman, belongs the credit of substituting a sustaining for a lowering treatment in fever. Todd, it will be remembered, gave stimulants freely—most modern physicians think much too freely—in the treatment of acute disease.

Dr. Hale White discusses this question of feeding the fever patient from a scientific standpoint. His observations should be studied by every physician; they are as practical as they are convincing. On physiological grounds he shows that the potential energy of the food of an average man who keeps well, is up and about, but does not take much exercise, should be about 2,500 calories—a calorie being the amount of heat required to raise the temperature of one gramme of water 1° Centigrade. If a man of average weight—namely, 66 kilogrammes—has a fever and lies in bed, he will probably require approximately 2,000 calories of energy a day. The usual amount of milk given daily to a fever patient—three pints—yields only 975 calories. This would constitute "a starvation diet." A patient may take in addition four or six dessertspoonfuls of maltine daily. Each of these contains 60 calories, so he will gain from 240 to 360 calories. A dessertspoonful of honey is worth 70 calories, but the best carbohydrate for fever patients is lactose, of which 2 ounces may be dissolved in water and added to each pint of milk, the value of which will be increased in this way by 240 calories. Suppose, then, a patient takes 3 pints of milk = 975 calories, with 2 ounces of lactose in each pint = 720 calories, the total is 1,695 calories. The addition of a little cream to each pint

* *Studies in Physiology and Medicine.* By the late Robert James Graves, F.R.S., Professor of the Institutes of Medicine in the School of Physic in Ireland. Edited by William Stokes, Regius Professor of Physic in the University of Dublin. London: John Churchill & Sons. 1863. Page lix

brings the amount nearer still to the required 2,000 calories, and improves the taste of the milk.

Dr. Hale White rightly says that much judgment is required to give alcohol properly in fever. He adds: "Many persons at the present time take so little when well that it is disagreeable to them when ill, but it may be useful to induce sleep, and small quantities may improve the appetite. . . . A great advantage of alcohol in fever is that it is a food; an ounce of pure alcohol has an energy value of about 200 calories, and the body can utilise this. Further, it is a food which does not require digestion, is easily absorbed, and it is to some extent a sparer of fat." We are glad the author qualifies these statements by the sensible words: "It may, on the whole, be said that alcohol is often unnecessary in fever, since energy, stimulation of the heart, and the effect on digestion and sleep may all be obtained by other means."

We thoroughly endorse another statement in this admirable article—namely, "It is well known that beef-tea, meat extracts and juices, provide very little energy, and therefore are not important as foods; indeed some of them are hardly foods at all."

The second division of this volume introduces the subject of the Infections, which is to be continued in the second volume. The infections "of established bacteriology" which are presented are in sequence—septicæmia and pyæmia, erysipelas, infective endocarditis, cerebro-spinal fever, influenza, diphtheria, tetanus, enteric fever, and relapsing fever.

In concluding this notice, we have genuine pleasure in congratulating the joint-Editors on the first-fruits of their labours. The excellence of this first volume augurs well for the success of the new issue of "A System of Medicine by Many Writers."

The Dublin University Calendar for the Year 1905-1906.

Volume II. Dublin: Hodges, Figgis & Co. London: Longmans, Green & Co. 8vo. 1906. Pp. iv. + 371.

THIS neat volume contains the usual information relative to the work done in the University of Dublin during the

year 1905, and to the existing officers of Trinity College and its present members. The lists of the *Senatus Academicus* and of the University Electors, corrected to January, 1906, are also included.

A useful feature in the volume is a continuation of a list given in a special supplemental volume in 1901. This list includes the officers of College Societies, prizemen, graduates in honours at the B.A. degree examination, the recipients of honorary degrees, and the names of benefactors of Trinity College.

At page 149 there is an encouraging statement as to the present strength of Trinity College. According to this statement the total number of students on the College Books, under the degree of M.A., is 1,114. The corresponding number for the previous year was 1,088. The students include 97 women—"pensioners," 70 Scholars of the House, one "Fellow-commoner," 906 men-pensioners, and 40 Sizars and Ex-Sizars. Of the 97 women, the names of 24 were placed on the books as Candidate Bachelors, in accordance with the transitional privileges granted to women. These privileges will shortly cease.

Physical Diagnosis. By RICHARD C. CABOT, M.D.; Instructor in Medicine in Harvard University. Third Edition, Revised and Enlarged. With Five Plates and 240 Figures in the Text. London: Baillière, Tindall & Cox. 1906.

THIS book is an excellent one of its kind, embodying as it does all the essential diagnostic methods which are employed in every-day general practice. It gains additional value from the fact that the author has refrained from including in his pages the description of methods or tests with which he is not familiar. This has led, as is pointed out in the preface, to the omission of accounts of such diagnostic aids as cystoscopy, ophthalmoscopy, &c.; but far from regarding this as a fault we look upon it as one of the justifications of the volume before us, for by the omission of such specialised processes, which are better dealt with in special works, the author has been able to

afford sufficient space to the important subjects of diagnosis by sight, and touch, and hearing.

By far the best part of the book is that section which is devoted to the examination of the thoracic viscera. It occupies more than half of the entire number of pages, and the information given is reliable and accurate. We imagine that the author addresses himself principally to qualified men, and without doubt most of his readers will be graduates, as the book is rather too large for the medical student. We could wish, however, that medical students would be compelled to read and learn those pages in which the principles of physical diagnosis, as far as the chest is concerned, are dealt with, for a want of knowledge of such principles too often causes the student to regard a given disease as a haphazard collection of signs, without at all appreciating the reasons which lead to the development of these signs. Such knowledge is, of course, gained as the end of the medical course is reached, but it is so simple that it should be gained at once, and then it would leave the student more time for the study of the vastly more difficult subject of symptomatology.

With all of the author's opinions we do not agree, as, for example, in the value which he accords in diagnosis to the observation of Litten's phenomenon, and in his estimate of the value of the determination of the area of deep cardiac dulness. We are ourselves in agreement with those authorities—and they are many—who contend that it is practically impossible to map out by percussion the deep cardiac dulness. We, therefore, are unable to see what information can be obtained by attempting it. Many other similar points might be raised in criticism, but they involve more a difference of personal opinion regarding methods than a question of accuracy of facts. On the other hand, there are many apt aphorisms which linger in the memory, and have evidently crystallised out during the writer's experience as a teacher. One of these we quote, as we think it is hardly sufficiently insisted on in most text-books—"Breath sounds which are perfectly normal over the right apex would mean serious disease if heard over similar portions of the left lung."

The whole book is nicely got up, is well bound, and has a good index. The illustrations lack to some extent that artistic appearance that American publishers have made us familiar with, but they properly illustrate the text, and give good pictures of what the writer wishes to be appreciated. There is a mistake in the outline diagram on page 173 which should be rectified.

Anatomy: A Manual for Students and Practitioners. By HENRY E. HALE, A.M., M.D., Assistant Demonstrator of Anatomy, College of Physicians and Surgeons, Columbia University, in the City of New York; Clinical Assistant in Pediatrics, Vanderbilt Clinic, New York. Illustrated with 71 Engravings. London: Hodder & Stoughton.

As a general rule the small—peptonised—auto-digestible—manuals which we find prepared for the use of students are items of mental pabulum which not only fail to accomplish their professed object of the inevitable attainment of cerebral assimilation, but have almost invariably a definitely marked effect in weakening the natural intellectual functions—whether vigorous in tone or otherwise, in the previous stages of their existence—of the ill-advised learner who has adopted them as his guides. To this rule we have met, in the whole course of our prolonged past experience, with but very few exceptions—if any. Indeed, we had come to regard all such printed documents with a very pronounced feeling of disfavour; as definite factors in the genesis and progressive development of mental deterioration in the student section of our professional community. And of all the subjects forming the necessary basis of medical knowledge that of anatomy lends itself least effectively to peptonisation. Although the first volume ever prepared on the science is said by learned authorities to have been the work of a royal author, it is none the less true of the study—in the words of a quotation which has also reached us from the land of the Nile—that there is “no royal road” to anatomy. We of Dublin can afford to speak with some confidence on this subject, for our anatomical schools during three of the four quarters of the nineteenth century were the foremost

of the world. The revolutionary wave of the past quarter of a century has left its position not quite so satisfactorily established. But some of us still retain our faith in the possibilities of its future. And we know of no small manual of the subject which we can recommend to the beginner with more conscientious confidence than that of Dr. Hale.

On Professional Education, with Special Reference to Medicine. An Address delivered at King's College, London, on October 3, 1905. By T. CLIFFORD ALLBUTT, M.A., M.D., F.R.S., Hon. D.Sc. Oxon, &c., &c.; Regius Professor of Physic in the University of Cambridge. London: Macmillan & Co. 1906. Cr. 8vo. Pp. 80.

A SCHOLARLY Address from a scholarly pen, in which the author defines the attitude which universities should assume in respect to medical education and qualification. Joining issue with a comparison between the old and the new universities, drawn by Lord Rosebery when recently addressing the University of London as its Chancellor, Dr. Allbutt truly says:—"The old universities have to-day a nobler calling than ever before, to bear the flower of the experience of the world. The second-rate comes and goes, rises and falls, is courted and neglected; the first-rate rises slowly, but abides, surely withstanding not only the treachery and indifference of men, but fire also, the moth, and the edge of the sword" (page 29).

We thoroughly agree with the views put forward in the following sentences:—"The function of the University is not qualification for the practice of any art or trade, but is a training of the mind, a formation of habits of study, of insight, of easy handling of ideas, and of methodical research, whether by the principles of the future profession or of any other department of knowledge; an opportunity which is available before, and unless in exceptional cases only before, the technical stage of study is entered upon. After our plastic years, and under the pressure and cares of after life, such a training may be, but rarely is, achieved. In this respect education reminds me of fresco-painting, it must be accomplished swiftly and truly while

the plaster is wet; when the plaster sets the false and true lines set with it; the time for correction is past.

"The universities of the United Kingdom then step out of their function when they undertake, as they do, to issue with their degrees in medicine a licence to practise" (pages 41 and 42).

Here are Dr. Allbutt's views on the "One Portal System":—"The safety of the public being a State concern, the testing of medical efficiency is the duty of the State itself; and this responsibility the State assumes in practically all other European countries. For our nation, I think, a State portal, in the directest sense, is too cold-blooded, and might become too rigid for us; we desire more spontaneity and more variation. In the United Kingdom, then, the State should entrust this function, in each of the three kingdoms, to certain medical corporations, under the supervision of the General Medical Council; and its tests should be for safe practice rather than for large attainments." His views on professional education are sound (pages 42 and 43):—"Many of you" (he is addressing the students of King's College, London) "on leaving school have no choice but to complete your professional education in the five years' minimum, a period shorter by a year than in other chief European countries. . . . To learn your profession in five years means that you will get some education, and suffer invariably some cram. . . . Such an one must be content, then, with the honourable ambition to become at any rate a competent practical physician, shrewd, resourceful, and unselfish; a guide to health and a stay in adversity."

To such a man the author pays a high tribute in these generous words:—"When it comes to the cure of disease, it is by the closer converse with the patient, the little daily dexterities, the cautious but shrewd empiricism, the tact and attention which, by easing and modifying abstract lines of the treatment, adapt them to the peculiarities of the individual, day by day meeting quickly every new symptom and contingency by this incidental drug or that little change in diet, that a family physician, who may have enjoyed little beyond the ordinary advantages of a

technical training, nevertheless compasses the cure of the individual case on which the consultant can but advise in general terms."

The peroration of this admirable address is very fine, but we would refer our readers to the passage itself, for it is well worth reading, as indeed is the whole essay from beginning to end.

Clinical Methods : A Guide to the Practical Study of Medicine.

By R. HUTCHISON, M.D., F.R.C.P., Assistant Physician to the London Hospital, &c. ; and H. RAINEY, F.R.C.P. Ed., Examiner in Medicine, St. Andrew's University, &c. With upwards of 150 Illustrations, and 9 Coloured Plates. Third Edition, thoroughly Revised. London : Cassell & Co. 1905. Pp. 634.

WE welcome with much pleasure the third edition of this excellent text-book, which treats of the clinical, microscopical, chemical, and other scientific methods for the investigation of disease. Although many other works of a similar nature have appeared in recent years, some of which greatly exceed in size and pretensions the book before us, yet we cannot recall any of them which will be found more thoroughly suitable for its purpose or more practically useful than "*Clinical Methods*." We have frequently had occasion in our work to refer to it, and always found it satisfactory.

This third edition has been revised ; new paragraphs have been introduced into almost every section ; thus the book is kept well up to date. As a result of these additions the size of the work has been increased by 22 pages. A new coloured plate is introduced, showing in an excellent manner the various forms of white cells found in the blood. The plate which appeared in former editions showing the cells found in the blood in health and in some diseases has been withdrawn, and a new plate takes its place. We are not sure that this is an improvement.

We can warmly recommend "*Clinical Methods*" as a first-class book.

PART III.

SPECIAL REPORTS.

REPORT ON MEDICINE.

By T. GILLMAN MOORHEAD, M.D. Univ. Dubl.; Physician
to the Royal City of Dublin Hospital.

THE RELATION OF THE SIZE OF THE HEART TO TUBERCULOSIS.

Bouchard (*Berlin. klin. Woch.* No. 45, 1905) recalls the statement that a small size of the heart predisposes to tuberculosis, especially of the lungs, and states that as a result of his investigations he is enabled to prove the truth of the assertion. In conjunction with Balthazard he has determined by X-ray examinations the relations of the size of the projection of the heart on the chest wall in normal individuals to the body weight, the thoracic dimensions and other factors, and has applied the data thus obtained to diseased individuals. He finds that, with the exception of chlorosis, an unusual smallness of the heart is found only in tubercular individuals, and then only in the earlier stages of the malady, the small size being, of course, relative and not absolute. He has also observed that in individuals who grow rapidly, and especially in those who become obese, the growth of the heart is not in proportion to the increase of weight, and that consequently the general constitutional strength of the individual is likely to become lessened. These individuals, as has long been recognised, are particularly prone to pulmonary phthisis, and the explanation of this is to be found, according to Bouchard, in the above observation.

IDIOSYNCRASY TO VERONAL.

Kleine (*Münch. med. Woch.* 1905. No. 32) reports an important case of a mental patient in whom signs of

poisoning appeared after very small doses of veronal. The drug had been given for three days in daily doses of $\frac{1}{4}$ – $\frac{1}{2}$ gramme. On the second day signs of intoxication appeared, and on the third day the patient was apathetic, and almost comatose, with double vision, general weariness, and sensations of giddiness. The pupillary reaction was sluggish, and speech incoherent. These symptoms only disappeared gradually on stopping the drug. Later investigations with veronal showed that the same symptoms were always produced by it in that particular patient, who, moreover, did not show idiosyncrasy to other narcotics.

LATE RICKETS.

Curschmann (*Mitteil. a. d. Grenzgeb. d. Med. u. Chirug.* Bd. 14. S. 31) reports a case of late rickets occurring in a girl aged eighteen who was otherwise healthy. The ætiology, he says, is still obscure. Whether hereditary predisposition has any part in it is quite undecided, and also whether the condition is merely a recrudescence of an earlier attack. Most well authenticated cases have occurred in young girls, and the first symptoms, both subjective and objective, are found in the lower extremities. These consist of a feeling of tension and stiffness in the thighs, followed by pain referred to the hips. The gait becomes waddling, and bending of the femora, especially at their lower epiphysary junctions, develops. Thickening and deformity of the tibia soon follows, and typical bow legs, with changes in the feet, may be found. In many cases the changes remain limited to the legs, but in others the arm bones are involved, and even spontaneous fractures of these may occur. Spinal curvature and pelvic deformity are rarer, but may be met with. On the other hand, characteristic thoracic lesions are never met with, in the sense of alterations in shape, although the rickety rosary is an inevitable symptom. There are usually no gastric or nervous phenomena. The treatment consists in rest in bed and the exhibition of phosphorus and cod liver oil, followed later by hydrotherapy. The prognosis is, on the whole, favourable.

DISTOMUM DISEASE OF THE CENTRAL NERVOUS SYSTEM.

Tanginuchi (*Arch. für Psych. u. Nervenkrank.* 1904. 38. H. i.) points out that the distomum disease of the lungs, so common in Japan, is often accompanied by nervous symptoms. Mouye has described eleven cases of this sort, six of which presented such well-marked symptoms as unilateral cramps, hemiparesis, and epileptic convulsions. Out of the eleven cases four were examined *post mortem*, and in two of these no anatomical changes could be found in the brain. In one now reported there was present an area of inflammatory softening in the right cerebral hemisphere, which had been caused by ova of the lung parasite. The foci of inflammation showed small spots, cysts, and cavities filled with amorphous material and altered blood cells, and surrounded by a double wall, composed externally of the adventitious tissue of blood vessels and internally resembling the elastic membrane of vessels. The ova in fact must have reached the brain as emboli derived from the pulmonary site. The clinical symptoms had consisted of Jacksonian epilepsy, chorea, and athetosis, together with a universal muscular weakness.

PNEUMOTHORAX AND PARALYSIS OF THE RECURRENT
LARYNGEAL NERVE.

Ohm (*Berlin. klin. Woch.* 1905. No. 49) discusses briefly the occurrence of paralysis of the left recurrent laryngeal nerve unassociated with the presence of actual intra-thoracic tumours, and points out that it has occasionally been observed in cases of mitral stenosis, in which the distended left auricle by pressure upon the aortic arch caused flattening out and atrophy of the nerve. He then records the case of an individual suffering from pulmonary tuberculosis, who was admitted to hospital with a right-sided pneumothorax and with left recurrent laryngeal paralysis. Examination showed that the pressure exerted by the air in the right thorax was very great, and it was noticed that the left vocal cord was almost motionless. After puncture of the chest, however, and relief of the pressure, the voice quickly became normal and the move-

ments of the vocal cord returned. A consideration of the case led him to the conclusion that the paralysis was produced by displacement of the aortic arch to the left and consequent stretching of the nerve where it winds round the arch. This conclusion was confirmed by the autopsy, death having taken place a month later, when no other cause for the paralysis could be discovered.

THERAPEUTICAL VALUE OF FORMIC ACID AND THE FORMATES.

Dr. Huchard contributes a valuable article to the *International Clinics* (Vol. iii. 1905. P. 46) on the above subject. He points out that the tonic and exciting properties of ants were mentioned by Charas in his "Galensi Pharmacopœia" which appeared in 1717, and that the memory still lingers in some part of Switzerland where formic acid, obtained from ants and prepared synthetically, is employed for gout and rheumatism. On the whole, however, the drug has fallen into unmerited oblivion, despite the enthusiastic praise accorded to it by Garrigues in 1902. In 1904 Clément, of Lyons, again drew attention to it, and since that time Dr. Huchard has himself experimented with it. The acid is usually prescribed as the sodium salt and in doses of about 3 grammes daily. Given in this way, it is stated (1) to have a remarkable musculo-tonic action, which renders it most valuable for neurasthenia and all adynamic conditions; (2) to have a powerful diuretic action, and to increase the output of nitrogenous waste products; (3) to have no toxic effects, and, above all, no ill effects on the kidneys. It must not be prescribed with acid syrups, for the resulting formic acid would prove most irritating to the stomach. Clément is quoted as maintaining that "a normal person, with normal diet, performing normal work, no longer feels fatigue so long as he makes use of formic acid."

TRAUMATIC PNEUMONIA.

Dr. Beadnell (*B. M. J.*, Oct. 14th, 1905) reports an interesting case of traumatic pneumonia. The subject, a sailor, tripped and fell at 7 p.m. on May 28th, striking the left side of his chest violently against the ship's gunwale. Next

morning he felt sick, with headache and pain in the left side of his chest, and his temperature registered 104° F. By noon crepitus was audible over the site of injury, and the patient then passed through a typical attack of lobar pneumonia, with crisis on the fifth day. These cases are of interest, he points out, as showing the exact influence on infective diseases of a diminished area of resistance within the body.

POLYCYTHÆMIA WITH SPLENIC TUMOUR AND CYANOSIS.

Reckzeh (*Zeitschrift für klin. Med.*, Bd. 57, S. 215) applies the term "polycythæmia" when the number of red blood corpuscles exceeds 8,000,000 per c.m.m. In five reported cases the number varied from 6½ to 12 million, with an average of 10 million. The white cells varied from 4 to 25 thousand. The syndrome has often been found associated with primary tuberculosis of the spleen, but this condition is not necessarily present, and the writer is disposed to lay more stress on general venous stagnation. In one case he observed a slowly-growing malignant tumour of the thymus which compressed the superior vena cava, and was followed in succession by cyanosis of the upper part of the body, by polycythæmia, and eventually by splenic enlargement. The writer also experimented on animals, diminishing the size of the great veins close to the heart by one half, and found that the red cells became greatly increased, that the veins appeared fuller, and that there was general cyanosis. At the autopsy congestion of all organs, but especially of the spleen, was found. The writer suggests that in some of the clinical cases reported a general want of tone in the veins may have been the primary cause of the symptoms.

ALCOHOL-COCAÏN INJECTIONS FOR TRIGEMINAL NEURALGIA.

Ostwalt, of Paris, describes (*Berlin. klin. Woch.*, No. 1, 1906, p. 10) the technic which he employs in the treatment of inveterate facial neuralgia by alcohol-cocaïn or alcohol-stovaïn injections. The method is very similar to that of Schloesser, of Munich, who first suggested the procedure. A specially-prepared syringe is filled with the

solution for injection, and its point is then driven through the mucous membrane of the superior alveolar fornix external to the last molar tooth. By careful manipulation it is then gently moved up to the base of the skull, and moved slightly outwards until the extremity is found to catch in the foramen ovale. It is then driven one or two millimetres through the foramen, and the alcohol solution is injected slowly, about 2 c.c.m. being given at a time. A single injection seldom suffices for a cure, but three or four at intervals of a week generally result in complete relief. The writer has treated forty-five cases in all, and in every instance successfully, many being completely cured who previously had been sufferers for many years.

THE OPSONIC INDEX.

Numerous papers have appeared during the last few months on the "opsonic index" of the serum for different bacteria as determined by Wright's method, and extensive investigations are now being carried on, particularly with reference to the index for tubercle bacilli, by Wright himself and his colleagues and assistants; by Bulloch, and by numerous observers in consumption sanatoriums throughout the United Kingdom. From the mass of evidence that has so far been collected the following more or less tentative conclusions have been drawn:—(1) The opsonic index of normal individuals does not vary more than from .8 to 1.2. Bulloch found that the average index of a large number of healthy individuals was .95 as compared with his own reckoned as 1. (2) The opsonic index of tubercular individuals is either markedly below or markedly above the normal, and accordingly may be employed as a diagnostic aid in doubtful cases. (3) Following upon the injection of small quantities of tuberculin (T. R.) there is a primary fall in the opsonic index (negative phase), followed in the majority of cases by a subsequent rise up to and above the normal level. This high level may be maintained for several days, and then gradually falls. (4) It is not possible to raise the index above a certain level by repeated injections of tuberculin, but by carefully-adjusted doses it may be possible to maintain it steadily

at a level considerably above normal. In this fact lies the reason of the therapeutic value of tuberculin. (5) Alteration in the level of the opsonic index is not necessarily associated with any definite change in clinical signs, though as a rule improvement is noticed when the index has remained high for some time. (6) As far as tubercular lesions are concerned, those that show most improvement from tuberculin administered by Wright's method are cases in which the lesions are strictly localised.

SPINAL CORD LESIONS IN ACROMEGALY.

Barrett (*Amer. Journ. Med. Sci.*, Feb., 1906, p. 246) puts on record a case of acromegaly in which there were numerous scattered patches of degeneration in the spinal cord. The patient was a female, aged about sixty-six, who had been under observation with typical acromegalic symptoms for some years, and who died eventually from the combined effects of intracranial pressure and cardiac disease. At the autopsy a sarcoma of the pituitary body was found, and also the following changes in the spinal cord:—In the first cervical segment the posterior median fissure was enclosed on each side by two degenerated areas. These areas united vertically to form a wedge-shaped figure posterior to the grey commissura, and diverged posteriorly into the columns of Burdach. Somewhat similar degenerations could be traced throughout the whole cervical and into the dorsal region. The reporter of the case calls attention to the fact that this is only the fifth observation of such degenerations in the cord in acromegaly, and points out that they can in no way be regarded as pressure effects. He regards them as similar in origin to the degenerations found in such diseases as pernicious anæmia, pellagra, &c.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR THORNLEY STOKER, M.D., F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF STATE MEDICINE.

President—F. C. MARTLEY, M.D., F.R.C.P.I.
Sectional Secretary—W. A. WINTER, M.D., F.R.C.P.I.

Friday, February 9, 1906.

THE PRESIDENT in the Chair.

Death-rates of the United Kingdom.

THE PRESIDENT delivered an address on the death-rates of the United Kingdom, explaining how the crude death-rate had to be corrected for age and sex distribution.

For every 100 deaths that occurred in the United Kingdom as a whole, in Ireland amongst males, only 92.6 took place, and in England and Scotland, 100.9 and 101.7 respectively; while in the case of females the corresponding figures were 107.1, 98.7, and 102.5, thus showing how the male and female death-rate of Ireland differed so widely, not only from the rates of the other kingdoms, but also from each other. In the same way the male death-rates for the different counties of Leinster were compared with those of the divisions of England, and it was found that the South Midland division had a better index of morbidity than the lowest of the Leinster counties; but what was still more noticeable was that the figure for Dublin reached the enormous height of 172.8, while in London it was only 110.7.

Compulsory Re-vaccination.

SIR JOHN W. MOORE read a paper entitled "Compulsory Re-vaccination: The Solution of Vexed Questions Relating to Small-pox," in which he drew attention to the difficulties which beset sanitary authorities who wished to make provision for the treatment of small-pox arising in their districts, and referred to legal cases—one in England and one in Ireland—where application had been made before a judge to grant an injunction restraining the sanitary authority from erecting such hospitals on the ground that they were likely to spread small-pox by aerial convection. In the English case the judge had refused—owing to the contradictory expert evidence—to give a judgment, while in the Irish case the injunction had been granted as regards small-pox, but this judgment was afterwards reversed by the High Court on appeal. The author then discussed the question as to whether the infection of small-pox was carried through the air, and expressed his belief that it was. He then went on to show that efficient vaccination and re-vaccination were the real solution of this question, and pointed out that in the experience of Germany, where they had compulsory vaccination and re-vaccination, the number of persons susceptible to the poison of small-pox was so small that there were practically no special hospitals for the treatment of that disease, and he therefore held that if vaccination and re-vaccination were made compulsory in the United Kingdom we would have no need for special small-pox hospitals.

THE PRESIDENT did not think that anybody who studied the question from a scientific standpoint could possibly have any doubt as to the efficacy of vaccination in the prevention of small-pox, and further expressed himself as agreeing entirely with the opinions held by Sir John Moore.

DR. DELAHAYDE held that it would be very difficult to enforce compulsory vaccination and re-vaccination in these countries, though he thought it would be easier to have such laws carried out in Ireland than in England and Scotland, as the people of Ireland were more inclined to take the advice of medical men on such subjects, and he further said that previous to attempting to obtain legislation we ought to endeavour to educate the public.

DR. T. P. KIRKPATRICK said that it was, in his opinion, a matter of complete indifference how small-pox was disseminated, because if the community was protected by vaccination and re-vaccination the disease could not spread.

DR. H. U. BYRNE spoke as a public vaccinator, and, while

completely agreeing with the paper, he instanced the difficulty he had experienced in getting the workmen to consent to be re-vaccinated, though they were quite willing that their families should be done. This difficulty was caused by their natural objection to be unable to go to work. He further held that there was no real objection on the part of the public in Ireland to vaccination, but went on to express his doubts as to whether the number and depth of the scars of primary vaccination were any guide as to the amount of protection enjoyed by the person.

SIR JOHN MOORE then shortly replied, and expressed the opinion that it would not be wise at present to advocate the bringing in of a Bill in favour of compulsory re-vaccination, although no opportunity should be lost of impressing on the public the value of re-vaccination as a preventive of small-pox, and the necessity for it at or about the age of 12 years.

SECTION OF PATHOLOGY.

President—JOSEPH O'CARROLL, M.D., F.R.C.P.I.

Secretary—PROFESSOR WHITE, R.C.S.I.

Friday, February 16, 1906.

SIR THORNLEY STOKER, President of the Academy, in the Chair.

Abdominal and Pelvic Tuberculosis.

DR. LITTLE discussed the symptomatology and treatment of tubercular disease as it affected the peritoneum, the intestines and the mesenteric glands. [His paper will be found at page 241.]

SIR WILLIAM SMYLY said that the study of tuberculosis of the female genitals during life has been rendered possible only since the use of the curette and abdominal section have come into vogue. [His paper will be found at page 249.]

PROFESSOR McWEENEY referred to his experience with regard to the pathology of tuberculosis. [His paper is published at page 254.]

MR. T. E. GORDON read an account of a case of chronic abscess successfully treated by tuberculin (Dr. Gunn's case). [His paper appears in full at page 258.]

PROFESSOR WHITE dealt with Wright's recent work, and stated that the good effect of operations in certain cases of tubercular peritonitis depended mainly on two factors—the first being the replacing of a fluid containing little or no protective substances

by a fresh fluid containing a much larger amount, and the second being the rise in the opsonic index due to auto-inoculation which results from operation. He illustrated both factors by several curves of the opsonic index in cases of a tubercular nature which had been operated upon. [His paper will be found at page 262.]

DR. PARSONS drew attention to the occurrence of tuberculosis in hernial sacs, and said he had a patient suffering from that affection, who showed no signs of abdominal tuberculosis. He saw recently an account given, by Dr. Carmichael, of 154 cases of hernia in children. Four of these were tubercular, and in one of the four there was found general infection of the abdominal cavity.

DR. COLEMAN said he thought that both the diagnosis and treatment of local tuberculosis had been placed on a very satisfactory footing by Wright's method. For some time past he had been treating local forms of tuberculosis with promising results, by giving tubercle vaccine controlled by determination of the opsonic index. Wright had treated severe cases of tubercular peritonitis with success. That treatment, however, was not suited for every case.

DR. PUREFOY said he saw tubercular conditions of the genital tract in two puerperal cases. Both patients died a few weeks after delivery of advanced pulmonary phthisis. One of these had borne several children. In her case he found projections, like yellow pustules, on the posterior vaginal wall. One case of tubercular nodules on the uterine end of the Fallopian tube has been reported.

SIR THORNLEY STOKER said that Dr. Coleman seemed to be curing by Wright's method patients that he had failed to benefit by operation. Two years ago a patient came to the Richmond Hospital with a tumour in her right iliac region. He explored it, after incision, and found a hypertrophic tubercular mass in the ascending colon, which he removed. The patient never got a rise of temperature, and left the hospital well.

MR. J. M'ARDLE said, in reference to tuberculosis in a hernial sac, that, where a hernia had been present for some time, the intestinal wall was weakened, and it was this condition that allowed the tubercle bacilli to permeate it. As to the possibilities of the tuberculin treatment, we were now employing no haphazard method. He did not think, however, that we had yet got a panacea for the lesions caused by the tubercle bacillus.

DR. TRAVERS SMITH said that in his clinical experience diarrhoea

was not a constant symptom of tubercular ulceration of the intestine. Dr. Earl made a *post-mortem* examination of a boy, aged fourteen, who died from pulmonary tuberculosis, whose large and small intestine were extensively ulcerated. He also expressed surprise at Professor McWeeney's statement that ninety per cent. of acid urines containing pus were tubercular.

MR. E. H. TAYLOR mentioned the case of a man who came to hospital about a fortnight ago with pain in the abdomen and swelling in the right side. Opening the abdomen he found a tumour as big as an orange in the ascending colon, above the cæcum. The muscular coat of the ileum was hypertrophied, and some of the neighbouring glands were caseating. He regarded it as tubercular. After operation the patient got well.

DR. MOORHEAD spoke of a case of hypertrophic tuberculosis of the cæcum, which had been remedied by complete excision of the cæcum and ileum.

DR. LANGFORD SYMES said tubercular ulceration of the genital tract, even in children, was said to have occurred. There was a variety of tubercular peritonitis in children in which infection was brought about by means of the umbilical cord. The abdomen was enormously distended by gas, the child wasted considerably, but there was no ulceration of the bowel. Extensive miliary tubercles were present. A foul and fœtid discharge from the umbilicus in young children was connected with tubercular affections.

SECTION OF SURGERY.

President—SIR ARTHUR CHANCE, P.R.C.S.I.

Sectional Secretary—E. H. TAYLOR, F.R.C.S.I.

Friday, February 23, 1906.

MR. L. G. GUNN, F.R.C.S.I., in the Chair.

Appendicitis.

MR. D. KENNEDY read a paper on the above subject. He strongly advocated operation in the course of the disease as being calculated to shorten the illness and reduce the mortality. He gave a brief history of eight cases, out of a series of forty-three, upon which he had operated during the acute stage without a death. The dangers of operating during an acute attack, he believed, were

greatly exaggerated. Unless complications were present, appendicectomy was as safe during the attack as in the quiescent period. The ideal operation was removal of the offending structure. If pus were present, free drainage should be provided. Mr. Kennedy condemned indiscriminate douching and rough sponging of the peritoneum. The diagnosis of the disease was frequently difficult in children, and a proper examination could be made in these cases only by the aid of an anæsthetic. In all cases he recommended a rectal examination, and in females a vaginal examination, when possible, for diagnostic purposes.

The CHAIRMAN referred to the importance of a leucocyte count in coming to a diagnosis, and recommended the employment of palliative measures before urging operation.

MR. A. B. MITCHELL (Belfast) alluded to the difficulty sometimes experienced in diagnosing appendicitis in an early stage. He had seen the condition confounded with perforation of a duodenal ulcer. He thought it advisable to remove the appendix in suppurative cases, and also at a very early period if the disease were diagnosed with certainty. Failure to remove the appendix might lead to recurrence with abscess formation.

DR. SAVAGE mentioned some facts illustrating the connection between appendicitis and suppuration elsewhere in the body. In one case he thought an attack of appendicitis had followed upon follicular tonsillitis ending in suppuration.

Excision of the Scapula for Neoplasm.

MR. A. B. MITCHELL read a paper on the above subject. He described in detail the steps of the operation, laying emphasis upon the more important points. The patient was exhibited and demonstrated the range of movement and the functional capacity of the limb. Skiagrams of the affected scapula taken before operation were presented for inspection.

The communication was discussed by SIR THOMAS MYLES, MR. KENNEDY, DR. JOHNSTON and DR. GOULDING.

THE FOOD FACTOR IN DISEASE.

TO THE EDITOR OF THE "DUBLIN JOURNAL OF MEDICAL SCIENCE."

SIR,—In thanking you for the very able and kindly review of my book "The Food Factor in Disease" which appeared in your February issue, may I be allowed a few words in exposition of its main objects. Briefly these are three—(1) To establish by means of circumstantial or clinical evidence—there being at present no direct chemical evidence forthcoming—the frequent existence of "hyperpyræmia" as an essential factor in many clinically diverse disorders. (2) To point out the salutary influence of the dietetic system which springs directly from the hyperpyræmic theory, but which may be justified independently by its results. (3) To call attention to the advantages which may be expected to accrue from occasionally taking a deductive view of disease—from approaching the solution of pathological problems from the side of physiology.

It is open for readers, with perfect consistency, to approve or accept any one of these three contentions, while disapproving or rejecting the remaining two. And each has now been accepted in different quarters.

The theory—or, if preferred, hypothesis—of hyperpyræmia has been accepted by Professor Chistenden, who very kindly allows me to publish the following extract from one of his letters:—"I have no doubt that the main part of your thesis relating to the blood-state or blood-states under the term of 'hyperpyræmia' is correct." The second contention has been accepted by the reviewer in the *Lancet* (Feb. 17, 1906), who says:—"Whatever the ultimate fate of his (the author's) thesis, the important fact remains that good may often be achieved by giving it practical effect, by curtailing—that is to say, the carbonaceous intake and enjoining a mode of life adapted to promote carbonaceous katabolism. In this way a long array of troubles can be greatly relieved if not actually cured. . . . He (the author) has brought home to the profession the fact that many disorders, such as migraine and asthma, which some would have us believe are due to an excess of purin bodies in the blood, and should therefore be treated by a purin-free dietary, can be even more effectively treated by a dietary in which bird, meat, and fish are liberally represented, but which contains carbohydrates and fats in small proportion." The third contention is, I take it, fully

approved by your own reviewer. This is a source of much gratification to me, because the method of investigation I have adopted—namely, the formation of hypotheses to be thereupon tested by their conformity or non-conformity with established facts—has been adversely criticised by more than one. Indeed, one reviewer holds that direct chemical demonstration is the only permissible evidence. What, it may be asked, would be the present state of medical science if such restrictions were actually in force? Where, for example, is the *direct chemical* demonstration of the toxæmias of syphilis and of many of the specific fevers?

I am, Sir,

Yours faithfully,

FRANCIS HARE.

March 6, 1906.

THE AERIAL CONVECTION OF SMALL-POX.¹

AN important leading article on the spread of small-pox from hospitals appeared in the *Lancet* for January 12, 1906. The writer considers that the facts regarding the outbreaks of small-pox in the Orsett Union in Essex in 1901-02, and in Felling in 1903-04, are hardly capable of any other explanation than that afforded by the doctrine of aerial convection. The story of the latter outbreak as told by Dr. George S. Buchanan, of the Local Government Board, is very striking. The urban district of Felling adjoins Gateshead, and the Gateshead Hospital is situated near the boundary line. Traffic to and from the hospital is all from Gateshead. Felling cases go to a hospital of their own, and no convenient route from the affected part of Felling passes the Gateshead Hospital, which is situated on out-of-the-way rising ground. Yet the Felling small-pox epidemic mainly attacked not its most populous part near the Tyne, but the higher and comparatively open country to the south, particularly a village less than half a mile from the Gateshead Hospital—a village lying in the path of light south and south-west winds blowing across the Hospital towards the village. The small-pox incidence on dwellings within half a mile of the Hospital was about three and a half times that on dwellings farther away, and no one of the wards in any part of Gateshead or Felling had so high a rate of small-pox as the half-mile area, the nearest approach to that rate being experienced by a Gateshead ward, which had many dwellings within a mile of the hospital.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

For four weeks ending Saturday, February 24, 1906.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending February 24, 1906, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 24.4 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,093,959. The deaths registered in each of the four weeks ended Saturday, February 24, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality.

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Feb. 8	Feb. 10	Feb. 17	Feb. 24			Feb. 8	Feb. 10	Feb. 17	Feb. 24	
22 Town Districts	21.8	21.4	22.2	24.4	22.5	Lisburn -	18.2	22.7	31.8	22.7	23.8
Armagh -	13.7	13.7	6.9	20.6	13.7	Londonderry	17.4	26.0	18.6	24.8	21.7
Ballymena	4.8	14.4	14.4	19.2	13.2	Lurgan -	17.7	22.1	17.7	26.6	21.0
Belfast -	20.2	21.2	26.0	25.3	23.2	Newry -	25.2	8.4	12.6	33.6	20.0
Clonmel -	20.5	20.5	20.5	15.4	19.2	Newtown- ards	68.7	40.1	40.1	74.4	55.8
Cork -	15.1	21.0	21.2	23.3	20.4	Portadown -	20.7	10.3	36.2	31.0	24.5
Droghda -	24.5	24.5	16.3	12.3	19.4	Queenstown	26.4	-	26.4	6.6	14.9
Dublin (Reg. Area)	24.4	20.5	19.0	24.4	22.1	Sligo -	24.0	19.2	43.2	9.6	24.0
Dundalk -	27.9	31.9	8.0	16.0	21.0	Tralee -	15.9	26.4	21.1	26.4	22.5
Galway -	35.0	31.1	11.7	38.8	29.1	Waterford -	11.7	23.4	17.5	17.5	17.5
Kilkenny -	19.7	24.6	29.5	29.5	25.8	Wexford -	28.0	23.3	18.7		17.5
Limerick -	24.6	23.2	28.7	24.6	25.3						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, February 24, 1906, were equal to an annual rate of 1.8 per 1,000—the rates varying from 0.0 in fourteen of the districts to 34.3 in Newtownards, the 13 deaths from all causes in that district including 4 from measles and 2 from whooping-cough. Among the 174 deaths from all causes in Belfast are one from scarlet fever, 7 from whooping-cough, 3 from diphtheria, 2 from enteric fever, and 2 from diarrhoeal diseases. Six deaths from all causes in Portadown include 2 from measles and one from enteric fever, and the 6 deaths from all causes in Lurgan include 3 from measles.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, February 24, 1906, amounted to 169—92 boys and 77 girls; and the deaths to 185—104 males and 81 females.

DEATHS.

The deaths registered during the week ended Saturday, February 24, represent an annual rate of mortality of 25.5 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the area, the rate was 24.4 per 1,000. During the eight weeks ending with Saturday, February 24, the death-rate averaged 22.7, and was 6.8 below the mean rate for the corresponding portions of the ten years 1896–1905.

The deaths registered (185) include one from scarlet fever, one from whooping-cough, one from diphtheria, one from enteric fever, and two deaths from diarrhoeal diseases. In each of the 3 preceding weeks deaths from scarlet fever were one, 0, and 0; deaths from whooping-cough were 2, 0, and 0; deaths from diphtheria were one, 0, and 0; deaths from enteric fever were one, 0, and 0; and deaths from diarrhoeal diseases were one, 0, and one. One death from influenza was registered.

There were 10 deaths from broncho-pneumonia and 3 deaths from *pneumonia* (not defined).

The deaths from all forms of tuberculous disease amounted to 41, and included 11 deaths from tubercular phthisis, 18 deaths from *phthisis*, 5 deaths from tubercular meningitis, and 7 deaths from other forms of the disease. In the 3 weeks preceding deaths from tuberculous disease were 38, 33, and 33, respectively.

Of 13 deaths from malignant diseases, 6 were attributed to carcinomas, one to sarcoma, and 6 to cancer (undefined).

The 18 deaths from diseases of the brain and nervous system include 11 deaths from *convulsions*—9 of these being of infants under one year of age—and 2 deaths of children between the ages of one year and 5 years.

There were 21 deaths from diseases of the heart and blood vessels, and bronchitis accounted for 27 deaths.

Of 4 deaths due to accidental causes, 2 were of children under 5 years of age from burns.

In 8 instances the cause of death was “uncertified,” there having been no medical attendant during the last illness. These cases include the deaths of 5 children under 5 years of age (including 4 infants under one year old) and the death of one person aged 90 years.

Forty-five of the persons whose deaths were registered during the week were under 5 years of age (27 being infants under one year, of whom 7 were under one month old) and 51 were aged 60 years and upwards, including 23 persons aged 70 and upwards, of whom 6 were octogenarians, and one (a man) was stated to have been aged 90 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious disease notified under the “Infectious Diseases (Notification) Act, 1889,” as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr.

Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended February 24, 1906, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epi- demic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping cough	Cerebro-spinal Fever	Total
City of Dublin	Feb. 3	-	*	*	6	-	-	3	1	3	7	11	-	*	*	*	31
	Feb. 10	-	*	*	11	-	-	-	-	1	5	12	1	*	*	*	39
	Feb. 17	-	*	*	3	-	-	6	-	2	5	11	2	*	*	*	39
	Feb. 24	-	*	*	5	1	-	1	-	5	5	9	-	*	*	*	21
Rathmines and Rathgar Urban District	Feb. 3	-	*	*	1	-	-	-	-	-	3	1	-	*	*	*	5
	Feb. 10	-	*	*	1	-	-	3	-	-	1	-	-	*	*	*	4
	Feb. 17	-	*	*	-	-	-	3	-	-	1	-	-	*	*	*	4
	Feb. 24	-	*	*	-	-	-	1	-	-	-	1	-	*	*	*	2
Pembroke Urban District	Feb. 3	-	1	-	2	-	-	1	-	-	-	-	-	*	2	-	6
	Feb. 10	-	-	-	-	-	-	-	-	-	-	-	-	*	-	-	1
	Feb. 17	-	-	-	-	-	-	-	-	-	1	-	-	*	5	-	6
	Feb. 24	-	-	-	1	-	-	-	-	-	1	1	-	*	-	-	3
Blackrock Urban District	Feb. 3	-	*	*	-	-	-	-	-	-	-	-	-	*	*	*	3
	Feb. 10	-	*	*	-	-	-	-	-	-	-	-	-	*	*	*	3
	Feb. 17	-	*	*	-	-	-	-	-	-	-	1	-	*	*	*	3
	Feb. 24	-	*	*	-	-	-	-	-	-	1	-	-	*	*	*	1
Kingstown Urban District	Feb. 3	-	*	*	-	1	-	-	-	-	-	-	-	*	*	*	1
	Feb. 10	-	*	*	-	-	-	-	-	-	-	1	-	*	*	*	1
	Feb. 17	-	*	*	-	-	-	-	-	-	-	-	-	*	*	*	1
	Feb. 24	-	*	*	-	-	-	1	-	-	-	-	-	*	*	*	1
City of Belfast	Feb. 3	-	*	*	33	1	-	6	3	9	12	3	2	*	*	*	60
	Feb. 10	-	*	*	35	-	-	3	1	9	24	10	-	*	*	*	62
	Feb. 17	-	*	*	30	-	-	5	2	5	21	2	1	*	*	*	66
	Feb. 24	-	*	*	32	-	-	7	1	10	9	13	1	*	*	*	73

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended February 24, 1906, 2 cases of measles were discharged from hospital, and not one case remained under treatment at the close of the week.

Nine cases of scarlet fever were admitted to hospital, 14 were discharged, there was one death, and 49 cases remained under treatment at the close of the week. This number is exclusive of 10 convalescents who remained under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

One case of typhus was discharged from hospital, and 2 cases remained under treatment at the close of the week.

Three cases of diphtheria were admitted to hospital, 7 were discharged, there was one death, and 28 patients remained under treatment at the close of the week.

Eight cases of enteric fever were admitted to hospital, 4 were discharged, and 27 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 6 cases of pneumonia were admitted to hospital, 9 were discharged, and 18 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended February 24, 1906, in 76 large English towns, including London (in which the rate was 17.5) was equal to an average annual death-rate of 17.3 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 19.6 per 1,000, the rate for Glasgow being 21.0, and for Edinburgh 18.7.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General for Ireland has been favoured by Sir Henry D. Littlejohn, Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended February 24. From this Return it appears that of a total of 50 cases notified, 22 were diphtheria, one was membranous croup, 21 were scarlet fever, and 6 erysipelas. Among the 316 cases of infectious disease in hospital at the close of the week were 133 cases of scarlet fever, 76 of diphtheria, 2 of membranous croup, 65 of measles, and 17 of typhoid fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of February, 1906.

Mean Height of Barometer,	-	-	-	29.764 inches.
Maximal Height of Barometer (7th, at 9 a.m.),	30.415	„		
Minimal Height of Barometer (10th, at 4 15 p.m.),	28.568	„		
Mean Dry-bulb Temperature,	-	-	-	38.2°.
Mean Wet-bulb Temperature,	-	-	-	36.3°.
Mean Dew-point Temperature,	-	-	-	33.7°.
Mean Elastic Force (Tension) of Aquoeus Vapour,	.194	inch.		
Mean Humidity,	-	-	-	84.1 per cent.
Highest Temperature in Shade (on 1st),	-	50.1°.		
Lowest Temperature in Shade (on 12th),	-	29.1°.		
Lowest Temperature on Grass (Radiation) (21st),	24.2°.			
Mean amount of Cloud,	-	-	-	53.9 per cent.
Rainfall (on 20 days),	-	-	-	1.644 inches.
Greatest Daily Rainfall (on 22nd),	-	-	-	.383 inch.
General Direction of Wind,	-	-	-	W.

Remarks.

February, 1906, was a cold, changeable month, with frequent but not heavy rainfall—often in the form of hail or sleet. The barometer fell to 28.568 inches on the afternoon of the 10th, having been as high as 30.415 inches on the 7th. The night temperatures were steadily low, the mean grass minimum being only 29.4°, and the mean minimum in the screen being 34.0°—only on the 1st did the thermometer touch 50° in the screen. As in February, 1905—which, however, was a mild month—the amount of cloud was relatively small, and sunshine was in excess.

The duration of bright sunshine was estimated at 92.5 hours, or a daily average of 3.3 hours, compared with 79.25 hours, or a daily average of 2.8 hours in 1902, 63.5 hours or a daily average of 2.3 hours in 1903, only 43.0 hours or a daily average of 1.5 hours in 1904, and 97 hours or a daily average of 3.5 hours in 1905.

In Dublin the mean temperature (39.7°) was 2.8° below the average (42.5°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 38.2°. In the forty-one years ending with 1905, February was coldest in 1895 (M. T. = 34.2°), and warmest in 1869 (M. T. = 46.7°) and in 1903 (M. T. = 47.5°). In 1902 the M. T. was 39.3°; in 1903, 47.5°; in 1904, 40.7°; and in 1905, 43.6°.

The mean height of the barometer was 29.764 inches, or 0.091

inch below the average value for February—namely, 29.855 inches. The mercury rose to 30.415 inches at 9 a.m. of the 7th, and fell to 28.568 inches at 4 15 p.m. of the 10th. The observed range of atmospheric pressure was, therefore, 1.847 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 38.2°, or 4.8° below the value for January, 1906. Using the formula, *Mean Temp. = Min. + (Max. — Min. × .50)*, the M. T. is 39.7°, compared with a thirty years' (1871–1900) average of 42.5°. On the 1st the thermometer in the screen rose to 50.1°—wind, W.; on the 12th it fell to 29.1°—wind, N.W. The minimum on the grass was 24.2° on the 21st.

The rainfall was 1.644 inches, distributed over 20 days. The average rainfall for February in the thirty-five years, 1866–1900, inclusive, was 1.990 inches, and the average number of rainy days was 16. The rainfall, therefore, was below, whereas the rainy days were much above, the average. In 1883 the rainfall in February was large—3.752 inches on 17 days; in 1879 also 3.706 inches fell on 23 days. On the other hand, in 1891, only .042 inch was measured on but 2 days. In 1905, .750 inch fell on 12 days.

The atmosphere was foggy on the 12th, 16th, 17th, 21st and 23rd. The amount of cloud—53.9 per cent.—was considerably below the average—66 per cent. At 9 p.m. it was only 52.1 per cent. High winds were noted on 12 days, and reached the force of a gale on 4 days—namely, the 8th, 10th, 11th and 22nd. Hail fell on the 3rd, 8th, 25th, 26th and 27th. Snow or sleet fell on the 3rd, 8th, 9th, 13th and 24th. Lunar halos were seen on the 2nd and 7th. Solar halos appeared on the 15th, 21st and 24th.

The temperature reached or exceeded 50° in the screen on the 1st only, while it fell to or below 32° on 10 nights, compared with as many as 18 nights in 1895. The minima on the grass were 32° or less on 21 nights, compared with every night in 1895. The thermometer failed to rise to 40° in the screen on the 9th (Max., 38.4°). The highest minimum was 42.3° on the 1st.

In Dublin the rainfall up to February 28th, 1906, amounted to 5.771 inches on 42 days, compared with 3.872 inches on 29 days in 1901, 3.362 inches on 22 days in 1902, 5.503 inches on 35 days in 1903, 5.847 inches on 36 days in 1904, 2.647 inches on 26 days in 1905, and a thirty-five years' (1866–1900) average of 4.220 inches on 34 days.

At the Normal Climatological Station in Trinity College, Dublin, the observers, Mr. Horace H. Poole and Mr. Thomas H. Hill, report that the mean height of the barometer was 29.760 inches, the highest reading observed being 30.417 inches at 9 a.m. of the 7th, the lowest, 28.619 inches at 9 p.m. of the 10th. The mean temperature was 39.9°, the mean dry-bulb reading at 9 a.m. and 9 p.m. being 38.8°. Rain fell on 18 days to the amount of 1.536 inches, .321 inch being measured on the 22nd. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 77.1 for 27 days, giving a daily average of 2.5 hours. The mean temperature of the soil at 9 a.m. at a depth of one foot was 39.8°; at a depth of 4 feet, it was 43.4°.

The rainfall at Leeson Park, Dublin, is given by Dr. C. Joynt, F.R.C.P.I., as 1.755 inches on 19 days, .475 inch having been measured on the 22nd.

At Wellesley Terrace, Cork, according to Mr. W. Miller, rain fell on 20 days to the amount of 2.85 inches, or 0.59 inch below the average for February. The heaviest falls in 24 hours were 0.42 inch on the 13th and again on the 18th. The rainfall of the first two months of 1905 has been 4.88 inches on 34 days.

The Rev. Arthur Wilson, M.A., returns the rainfall at the Rectory, Dunmanway, Co. Cork, at 5.28 inches on 22 days, the greatest fall in 24 hours being .635 inch on the 10th, at 3 a.m. of which day a very loud peal of thunder was heard. The rainfall for January and February equals 14.195 inches.

At the Ordnance Survey Office, Phoenix Park, the rainfall was 1.945 inches on 20 days, the maximal measurement in 24 hours being .320 inch on the 9th.

Miss Muriel E. O'Sullivan reports that at White Cross, Stillorgan, Co. Dublin, 1.499 inches of rain fell on 18 days, .440 inch the maximum being measured on the 22nd. Since January 1, the rainfall equals 6.135 inches on 39 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 18 days to the amount of 2.03 inches, the greatest daily fall being .68 inch on the 22nd. In February, 1901, the rainfall was 1.55 inches on 10 days; in 1902, it was 2.76 inches on 11 days; in 1903, it was 2.95 inches on 15 days, in 1904, 4.05 inches on 21 days, and in 1905, 1.07 inches on 12 days. The temperature in the shade ranged from 47° on the 1st, 7th, 9th, 24th and 28th to 29° on the 21st. The mean tem-

perature in the screen was 39.6° , compared with 39.0° in 1902, 47.1° in 1903, 40.4° in 1904, and 43.6° in 1905.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall was 1.845 inches on 14 days. The heaviest fall in 24 hours was .530 inch on the 18th. In February, 1900, the rainfall was 6.670 inches on 20 days; in 1901, 1.385 inches on 11 days; in 1902, 2.590 inches on 8 days; in 1903, 2.870 inches on 14 days; in 1904, 2.957 inches on 19 days; and in 1905, .650 inch on 9 days. The total fall to February 28th, 1906, inclusive, was 5.910 inches on 28 days, compared with 1.655 inches on 20 days in 1905, 5.692 inches on 36 days in 1904, 6.170 inches on 29 days in 1903, 4.450 inches on 17 days in 1902, 5.420 inches on 27 days in 1901, 10.436 inches on 44 days in 1900, 8.610 inches on 42 days in 1899, 3.980 inches on 29 days in 1898, 5.190 inches on 37 days in 1897, and only 1.940 inches on but 17 days in 1896.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 1.249 inches on 20 days. The greatest fall in 24 hours was .285 inch on the 18th. The mean shade temperature was 36.3° , the extremes being—highest, 48° , on the 26th; lowest, 25° , on the 11th and the 20th. The greatest range of temperature in 24 hours was 22° on the 8th.

The rainfall at Cloneevin, Killiney, Co. Dublin, as observed by Mr. Robert O'B. Furlong, C.B., amounted to 1.31 inches on 17 days, compared with 2.35 inches on 12 days in 1902, 2.03 inches on 14 days in 1903, 3.56 inches on 20 days in 1904, and .79 inch on 14 days in 1905. The average rainfall for February during 21 years, 1885–1905, at this station is 1.838 inches on 14 days. The greatest rainfall in 24 hours was .24 inch on the 22nd. Since January 1 the rainfall was 5.39 inches on 39 days, compared with 3.08 inches on 26 days in 1905, 5.98 inches on 37 days in 1904, 4.90 inches on 35 days in 1903, 3.97 inches on 24 days in 1902, 4.39 inches on 28 days in 1901, 7.23 inches on 48 days in 1900, 6.28 inches on 36 days in 1899, 3.32 inches on 29 days in 1898, and 4.31 inches on 38 days in 1897. Snow and sleet fell on the 2nd, 8th and 25th.

Dr. B. H. Steede reports that the rainfall at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, was 2.207 inches on 20 days, compared with 1.296 inches on 11 days in 1901, 2.923 inches on 10 days in 1902, 3.096 inches on 16 days in 1903, 4.408 inches on 24 days in 1904, and .848 inch on 10 days in 1905. The maximal fall in 24 hours was .410 inch on the 18th. Up to

February 28th, the rainfall at Newcastle amounted to 6.815 inches on 39 days, compared with 4.837 inches on 25 days in the corresponding period of 1901, 4.589 inches on 22 days in 1902, 7.416 inches on 35 days in 1903, 7.718 inches on 42 days in 1904, and 2.175 inches on 21 days in 1905. At this Second Order Station the screened thermometers fell to 29.9° on the 12th, and rose to 48.0° on the 26th.

Dr. J. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health for Kingstown, reports that the mean temperature at that health resort was 40.7, being 2.3° below the average for February during 19 previous years (1873-83 and 1898-1905). The extremes were—highest, 49.5° on the 9th; lowest, 29.5° on the 12th and 21st. At Bournemouth the mean was 40.2°, the extremes being—highest, 50° on the 12th and 26th; lowest, 26° on the 26th. The mean daily range of temperature was 9.5°, at Bournemouth it was 11.5°. The mean temperature of the sea at Sandycove bathing-place was 41.7°, being 1° below the average for the month during the past 8 years. The relative humidity was 78 per cent., being 3 per cent. below the average for the month during the previous 5 years. The rainfall was 1.37 inches on 15 days; at Bournemouth it was 3.0 inches on 20 days. The total duration of bright sunshine was 113.5 hours as compared with 101 hours at Ordnance Survey Office, Phoenix Park, 74.6 hours at Valentia, 101.6 hours at Birr Castle, 98.4 hours at Southport, and 94.3 hours at St. Leonards.

PERISCOPE.

SCIENTIFIC VIEW OF POPULAR FOODS.

DR. EDWARD F. WILLOUGHBY lectured on Thursday, March 1, at the Institute of Hygiene on "Popular Foods." He said that home-made beef tea was a misunderstood product of the culinary art, supposed to contain the goodness of the meat in a specially nutritive and easily digestible form. The real goodness of a steak lay in its muscular fibre (which was quite insoluble in water under ordinary conditions) and serum albumen, of which the meat contained six per cent. Serum albumen was soluble in cold and warm water only, being coagulated or fixed by heat in the tissues of the meat, and if extracted by special methods it was apt to be coagulated by the application of heat in the

warming-up process. In any case beef tea was found to contain only one per cent. of albumen, and this was often strained off, leaving only discoloured water, more delectable to the nose than nourishing to the body. Referring to condensed milk, the lecturer said a grave responsibility was incurred by coroners who sweepingly and indiscriminately condemned an article whose cheapness and handiness commended it to many poor mothers, when made, as some well-known brands are, from whole milk containing the full proportion of cream. The excess of sugar was not an ideal food for infants, yet experience proves that large quantities were easily assimilated by them, and thousands of the healthiest children who have been reared on condensed milk, honestly produced, and nothing else, attest the virtues of this product as an infants' food of great value. There are, however, brands of condensed machine-skimmed milk the extreme cheapness of which induces the ignorant mother suffering from the pinch of poverty to substitute such for the best and more expensive brands, but with disastrous results. With proper discrimination, said Dr. Willoughby, condensed milk might be depended upon to do a great deal in the limitation of infant mortality during the first year of life, if only ignorant prejudices were removed.—*Morning Post*, Friday, March 2, 1906.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Some Specialties.

MESSRS. PARKE, DAVIS & Co., Queen Victoria Street, London, E.C., have sent us specimens of their recent specialties as follow :—

Acetozone (Benzoyl-acetyl-peroxide).—The solution of acetozone is powerfully germicidal, yet non-toxic, and practically harmless to animal tissues. The 1 in 1000 aqueous solution is said to be remarkably successful in the treatment of typhoid fever. The solution of this strength is also given in ptomain poisoning, and is used as a lotion in erysipelas, ringworm, &c. The 1 in 2000 aqueous solution may be given in dysentery, diarrhœa and cholera infantum, and used as a collyrium in corneal infection. A 1 in 3500 aqueous solution may be given in intestinal fermentation or used as an injection in gonorrhœa, puerperal fever, &c. It may also be employed in cystitis, in the irrigation of abscesses and dressing of wounds. Acetozone mixed with

50 to 1000 parts of zinc oxide, starch powder, &c., is admirably adapted as a dusting powder.

Acetozone Inhalant.—This is a solution of acetozone (1 per cent.) and chloretone (0.5 per cent.) in liquid paraffin. It is valuable in all infectious or bacterial diseases of the nose, mouth, ear or throat, also in bronchitis and other inflammatory conditions of mucous membranes which are accessible to spray. It is practically non-irritating, and is best applied by means of a suitable nebuliser.

Thyroidectin.—A powder prepared from the blood of animals which have been deprived of the thyroid gland. It was assumed that by such means thyroidism could be neutralised, and clinical tests have corroborated the theory. In the treatment of Graves's disease (exophthalmic goitre) marked improvement has almost invariably been observed. Thyroidectin is non-toxic, and appears to be well borne by the stomach. It is supplied in capsules of 5 grains each, the dose being from 5 to 10 grains.

Scopolamin and Morphin Hypodermic Tablets.—Each tablet contains $\frac{1}{8}$ grain scopolamin hydrobromide and $\frac{3}{8}$ grain morphin hydrochloride. This combination is recommended by Korff (*Berliner klinische Wochenschrift*) for the production of general anæsthesia or as an aid to ether or chloroform, which, if used at all, are needed in much less quantities than usual. One-third part of a freshly-prepared solution of one of these tablets is injected $2\frac{1}{2}$, $1\frac{1}{2}$ and $\frac{1}{2}$ hour before operating. The combination is specially useful where ether or chloroform is contra-indicated. Reports state that salivation is not excited, liability to nausea is lessened, and quiet and freedom from pain after operation are secured. (See *Brit. Med. Journ.*, Dec. 30, 1905, p. 1703.)

Throat Mentholated (Modified), Compressed Tablet 427.—Each of these tablets contains menthol, $\frac{1}{32}$ grain; benzoic acid, $\frac{1}{12}$ grain; oil of anise, $\frac{1}{80}$ minim; and eucalyptol, $\frac{1}{16}$ minim. This formula differs from the well known throat mentholated (compressed tablet No. 330) only by the omission of cocain hydrochloride, $\frac{1}{380}$ grain. One tablet allowed to dissolve in the mouth occasionally is very useful in inflammation of the throat and bronchi, allaying cough and facilitating expectoration.

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

MAY 1, 1906.

PART I.

ORIGINAL COMMUNICATIONS.

ART. XVII.—*Bradycardia, with Arrhythmia and Epileptiform Seizures.*^a By JOHN MAGEE FINNY, M.D. Dub.; F.R.C.P.I.; Physician to Sir Patrick Dun's Hospital; King's Professor of Practice of Medicine, School of Physic, Dublin.

BRADYCARDIA—"Slowheart," or, as very properly insisted on by Gibson, "infrequent beating of the heart," has of late years assumed a prominence in clinical medicine, and has awakened considerable physiological and pathological interest. The work of Gaskell¹ on the functions of the heart muscle may be considered to have revolutionised the older views of the neurogenic cardiac mechanism, as it transfers the stimulus of the cardiac muscles from the higher nerve centres through the vagi and the sympathetic nerves to the muscle of the heart itself. "The muscular fibres of the heart possess the power of rhythmically creating a stimulus, of being able to receive a stimulus, of responding to a stimulus by contracting, of conveying the stimulus from muscle fibre to muscle fibre,

^a Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, March 30, 1906.

and of maintaining a certain ill-defined condition called tone" (Osler).

Many observers since then have detailed clinical cases based upon this theory—the "myogenic theory"—the more notable being Wenckebach, Jas. Mackenzie, Alfred Webster, George A. Gibson, and John Hay.

The term "heartblock" has been applied to the failure of an impulse, which has originated in the muscles of the auricles, to pass the auriculo-ventricular septum through the auriculo-ventricular bundle of His, and to stimulate a contraction in the muscles of the ventricle. In other words, the auricles contract regularly, but the ventricles do not respond oftener than once in two, three, or four of such auricular contractions.

When the ventricular impulses and systoles are continuously out of rhythm with the auricular contractions the term "bradycardia" is applicable; the rate of the ventricular systoles and the radial pulsations being synchronous, though infrequent—say to 40, 30, or 20 in the minute. Should the ventricular systole be occasionally still further delayed, so that there may be a cessation of ventricular contractions for 3, 5, 10, or 15 seconds in a minute, the term of "arrhythmia" is applicable.

The following case exhibits bradycardia and arrhythmia, and, as a result of the latter, epileptiform attacks of varying severity, in one of which sudden death occurred.

CASE.—Mrs. J. M'N., aged forty-two, married, was admitted to hospital on June 19th, 1905, under my care, on the recommendation of my colleague, Sir Arthur Macan, who had noticed the remarkable slowness or infrequency of her pulse—cir. 22 in the minute. She has three living children, and had had a fourth, born on April 27th, 1905, but he died of convulsions at the age of five weeks. Since her confinement, nine weeks before admission, she has had frequent "weak turns" or fits, and complains of weakness of her heart. She is unaware of her pulse rate being unusual. She has never had any other serious illness, and denies any syphilitic disease.

When questioned closely as to the fits, the patient states that

she never had had any attack before April, 1904—i.e., fourteen months before admission—and that she then suddenly fell and became unconscious; that this occurred three months before she became pregnant; that these attacks continued, at varying intervals, during pregnancy; they were not worse during parturition, nor while she was nursing her baby; but that after the death of the child they returned, and they have become much more frequent of late, she having had as many as twenty in one day last week.

I instituted inquiries at the maternity where she was confined, but the only note made was that the case was a breech presentation; and no comment of any convulsions, cardiac infrequency, or ventricular arrhythmia. She herself says that her heart was not affected, as at present, until the death of her baby—that is, not until about a month before admission to hospital, and that she never asked advice on the subject, although Dr. Byrne, Medical Officer of Grand Canal Street Dispensary, was in attendance at her house on the baby, during its illness, and up to the day of its death.

On admission the pulse was regular—20 to 24 in the minute—compressible and was unaccompanied by cyanosis, dyspnoea, or hurried respiration. There was no complaint made about the heart except a sensation, when a fit came on, of the heart beating forcibly. Subsequent observation did not confirm this idea, for rather the very opposite happened, as before a “fit” the heart’s beat was still less frequent, and sometimes there was an absence of any impulse, or pulse at the wrist, for 5, 8, or 10 or even 15 seconds; and as soon as the “fit” passed there was no excitement or tumultuous action of the organ.

The heart itself was slightly enlarged; the area of cardiac dulness extended from the left sternal line, at the level of the fourth rib, to the mammary line, and the impulse was under the nipple; a shade of dulness was present at the third left costosternal articulation and third space near it. The impulse and radial pulse were synchronous and, as a rule, regular; and when the pulse at the wrist was noted to be absent for five or ten seconds the ventricular systole and impulse were likewise absent. The impulse was abrupt, but never heaving or forcible, and did

not give the impression of hypertrophy. A second wavy impulse could at times be seen and felt above the fourth rib, and was probably auricular. The first sound was loud, and could be heard up the whole of the sternum, somewhat prolonged, owing perhaps to its slow rate, and was at times droning in character and with an approach to a murmur. The second sound was sharp and, like the first, very "deliberate," and did not instantly follow the first; it was pure and fairly loud, the pulmonary element being more pronounced. Careful examination showed the cerebro-spinal, pulmonary, hepatic, digestive and genito-urinary systems to be free from all organic disease, and menstruation had reappeared a month ago.

Two days after admission the jugular veins, at the root of the right side of the neck, were seen to beat two or three times for each ventricular systole. This phenomenon was present each day during the first two months of her stay in hospital, and could be readily noted and counted, as the rate of the pulse was so infrequent as 20 to 24 in the minute. If these venous pulsations were to be considered as due to auricular contractions, then the auricles were contracting three times the rate of the arterial pulse of the radial and the ventricular systoles, and radial pulsations occurred after intervals of three or four seconds between them and the auricular contractions.

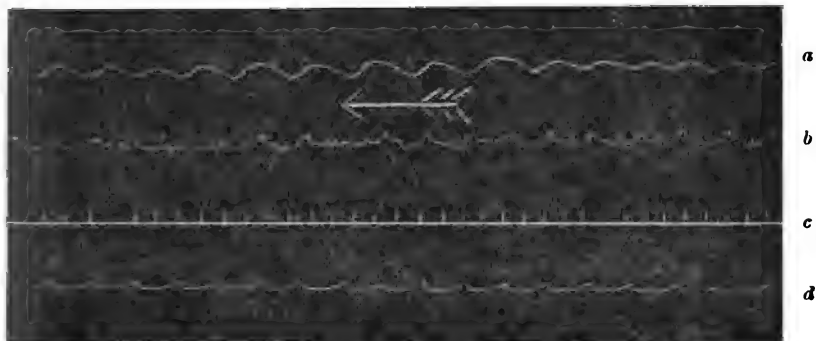
This very interesting question was settled by the application of the X-rays; and on July 7th Dr. E. J. Watson, our Assistant Physician and X-rayist, kindly examined the patient's thorax with the screen. His report was "that the heart is situated very horizontally; the auricles can be seen beating between the ventricular pulsations; two beats of the auricle were counted between the beats of the ventricle. The auricles seem slightly enlarged."

This is, I believe, the first recorded case where a practical ocular demonstration was made of the mechanism of this irregular pulsation in cases of bradycardia.

Professor W. H. Thompson most kindly took transmission tracings of the right radial, the jugular vein, and the respiration on July 21st. The venous pulsations can be readily seen to exceed those of the radial by two or three to one.

On June 28th the patient had a fit, and during it her face became flushed and her hands shook. It was noticed that just before the fit came on the pulse at the wrist had ceased.

FIG. 1.—Simultaneous Tracings from the Lung, Right Jugular Vein, and Radial Artery.



a. Respiration. b. Jugular Pulse. c. Seconds in Minute. d. Radial Pulse.

The sequence of the fit following the cessation, or arrhythmic contraction of the left ventricle, was not a matter of theory, for though it rarely happened that a fit came on while under examination, with the finger on the radial or the stethoscope over the heart, and though the vast majority of the fits were recorded by the nurses in charge or the clinical clerks after their onset and during their occurrence, still it did so happen that, on several occasions during the patient's stay in hospital, I myself verified the cessation of the ventricular systole and the radial pulse, and was able to call the attention of the class of students to an approaching fit when the intervals between the pulses extended to 5, 7 or 10 seconds. The house surgeon and clinical clerks confirmed this fact on many occasions. I was further fortunate in securing a sphygmographic tracing on July 21st, which Professor Thompson kindly took just at the very moment of the occurrence of a specially long pause, the pulse-rate being about 26 to the minute.

It will be seen that the pause lasted about ten seconds, and at that moment the patient had a slight "fit"—that is, her face flushed, her eyes were turned up to the right, a slight tremor

passed over her lips and fingers, and then she came to herself, looking a little frightened, and with a sort of sigh, while her eyes filled with tears.

FIG. 2.—Tracing from the Radial Artery with Arrhythmia and Syncopal Attack.



a. Seconds in Minute. b. Radial Pulse.

It is not necessary, and it would be tedious, to give the notes of the daily observations. Each day was like the other as a general rule, and I shall, therefore, summarise the progress of the case.

From the day of admission, June 19th, to the end of the month the "bradycardia" was generally at the same rate, and varied little between 22 and 28—several observations being made each day—and on the 28th it touched 32 for one counting. In July the same was the record, though it was as low as 18 on the evening of the 1st and the morning of the 5th, and was 16 in the evening of the 17th.

It showed variations sometimes, but very rarely. For example, at my visit, 10 o'clock a.m. on the 23rd, I found the pulse, which was 25 at 7 a.m., beating regularly at 56, and then, in a minute or two, it fell to 22, and that evening it reached 58—the highest since admission. On the 24th it was 25 at 7 a.m., 21 at 9 a.m., 56 at 10 a.m., and 36 at 8 p.m.

The patient, who had been kept recumbent, was allowed to sit up in bed on and after the 28th, and seemingly this was not attended by harm, though the pulse-rate rose to 52 on the 28th and 54 on the 30th. Fish and eggs were given on the 31st, and on the 3rd of August she was allowed out of bed to sit in a chair,

and to move about the ward. At the same time meat was added to her dietary. This extra dietary and change of posture seemed to have no other effect than to make the heart more regularly infrequent, and its rate for the fortnight following was between 24 and 20—the same whether lying down or sitting—and it fell to 18 on the evenings of the 9th and 11th, and to 16 on the 10th. From August until she left hospital on October 12th, the pulse rate was much the same, while her general health and strength improved, she had had fewer of the slighter “weak turns,” but no bad fits.

Naturally, an examination of the heart was being constantly and frequently made by myself, the house surgeon, the resident staff and my clinical clerks, and nothing different from what I have described above was noticeable until the 26th of July. On this day, between the ventricular contractions, which were 22 in the minute, four to six single sounds could be heard in the minute. These sounds were not accompanied by any pulse at the wrist. Their chief situation was over the right ventricle, at the fourth costal space in the left parasternal line, and they were faintly audible above the fourth rib. This observation was not again met with; but on the 29th and 30th of July the heart was noticed to beat between 52 and 56, regularly, and the pulse at the wrist agreed thereto; the first sound was of a deeper tone, and accompanied with almost a murmur.

On August 27th another and a new feature was noted by the house surgeon. On listening to the heart one sound was to be heard in addition to, and between, the regular heart sounds; the patient, while under observation, had a “weakness,” and nine of these intermediary sounds were counted before the heart beat again, then nine sounds and again a heart beat, then six intermediary sounds, and these sounds gradually became fewer until only one was heard between the ordinary heart sounds.

I must now refer more fully to another feature of this case which I have incidentally recorded, and that is, the attacks of the so-called “fits.” Of these there were three kinds, and, though probably of the same nature, they became spoken of as “weak turns,” “slight fits,” and “severe fits.” The association of these nervous attacks

with the marked arrhythmic retardation of the pulse was more than a matter of fancy. As the "weak turns" came on much more frequently than the others they were the commonest met with. Several occurred during my visits to the bedside, and while the stethoscope was being applied to the præcordium and the fingers to the pulse.

A "weak turn" was ushered in and preceded by a delay in the heart's beat and radial pulse. Thus, when a pause lasted seven to ten seconds the patient's face became pale, the eyes had a very pained and frightened look, and some little restlessness of the head and hands ensued; and it ended by a slight flushing of the cheeks, some tears in the eyes, and the patient would give a slight sigh, or little hem or cough, and the "weakness" would be over. The "slight fit" came on with a soreness or sharp feeling in the stomach and left side of the thorax, which would then extend up the right side of chest into the head and eyes. The pallor of the face would be more marked, the eyes would turn up to the right side, and the hands would fidget and the fingers catch at the sheets. The patient always came out of this fit in a more frightened and slightly dazed manner, and the eyes had a strained and somewhat blind look for some minutes. The "severe fit" was more distinctly epileptic with sudden onset, the patient falling back if sitting up in bed, great pallor, convulsive movements of hands and arms, and also slightly so of feet, unconsciousness for five to ten seconds, and then great flushing of the face, and the patient came out of it very confused, and she was dull and nervous the whole day following. She never bit her tongue or passed urine in these fits.

On July 2nd six fits occurred before noon; and at noon, as she was turning round in bed to take her dinner, she had a fit of unusual severity. The pulse stopped for ten seconds, she became dizzy and weak, her head fell down, the face flushed, and the limbs shook. Five minutes later another fit followed, of less severity, and three more fits occurred at intervals of a few minutes. The patient had twelve fits in the course of the day.

She is quite unconscious in the attacks, but by her subsequent feelings could say if they were mild or severe. The latter being preceded by the gastric aura referred to.

I was never able, during her first sojourn in hospital, to take the pulse at the moment preceding or following one of these "severe fits."

The number of the "fits" of all kinds—for I look upon them as epileptic in nature, though in varying degrees of intensity—varied from day to day—six on July 1st, twelve on July 2nd, three on the 13th, several on the 6th, six on the 15th, and four on the 17th. All through July the patient considered herself very much better, as the attacks were of the mildest form "weak turns." In the second week of August, however, the more severe fits returned, and the patient became more alarmed, as she was afraid to sit up or turn to the left, as she said these positions would induce a fit, and, for the same reason, if sitting up she dreaded lying back. I looked upon this apprehension, however, as probably nervous, inasmuch that when I induced her in my presence to do as I wished her, as to change of posture, she had no attack. Probably the cessation of the catamenial period was provocative of their recurrence, and of her increased nervous dread of them, as she had not been unwell since June.

The treatment which suggested itself to me at first was directed to combat the "fits," and I gave her bromide of potassium with iodide of potassium; and, from analogy with the good results derivable from the bromides in tachycardia (as Dr. Travers Smith² has shown), I hoped they might also command the bradycardia. But after a week's trial I discontinued it, as it tended rather to increase than diminish the heart attacks of bradycardia and arrhythmia, and the character of the pulse became more compressible, and the patient looked more depressed.

After further study of the case, and noting that the heart failure preceded the nervous attacks, and that in all probability the cardiac failure to drive the blood into the cerebral capillaries was the cause of the epileptiform

attacks, I gave the following prescription with good results, and this was taken without interruption till August 18th :--

R. Tinct. Strophanthi

Liq. Strychninæ Hydrochl. āā ℥v.

Acidi Hydrochlor. dil. - ℥x.

Syrupi Limonis - ʒi.

Aquæ ad - ʒi. Ft. dosis, mitte ʒx.

ʒi. t. d. s.

After August 28th she took "Easton's Syrup" until she left the hospital on October 12th, 1905, and she continued the tonic off and on at home, always attributing good to its use. Subsequently she occasionally attended at the hospital, when she stated she was able for light domestic work and the care of her children, but was never able to do heavy housework.

The "weak turns" were still present, but she had had only two severe fits, so far as could be ascertained, between Oct., 1905, and Feb., 1906. At the time of her visits the pulse was still infrequent, but regular, and about 24 in the minute. Dr. Watson examined her on Feb. 25th by X-rays, and demonstrated that the heart beat regularly at 28, and that the remarkable want of agreement between the contraction of the auricles and of the ventricles, which had occurred in July, 1905, no longer existed, and there were as many contractions of the ventricles as there were contractions of the auricles. It was also noticeable that the jugular pulsations were very indistinct, and could not be well counted.

With the intention of making a series of observations on this point, and for the purpose of having fresh and extended sphygmographic tracings, so as to enable me to speak more accurately as to the nature and the frequency of the epileptiform attacks, I re-admitted the woman to hospital on the 28th of February, 1906, six months after her first admission to hospital. The following notes were made by Mr. William Pearson, clinical clerk, to whom I am indebted for the accuracy of its report

and for his graphic description. Owing to the terribly sudden and fatal termination by a syncopal attack on the sixth day after her re-admission I give the notes in full:—

The pulse, taken at the wrist, on March 1st at 10 a.m., was regular, full, of good tension, and numbered 26 beats to the minute. It corresponded with the frequency of the heart. The heart's impulse was seen to be widely diffused; its action was slow and deliberate in character, being first apparent over the auricular region to the left of the sternum, and gradually passing downwards, over the ventricles, to the position of the normal apex beat. This slow movement was reminiscent of a wave of peristalsis crossing along the bowel beneath a thin abdominal wall. The ventricular impulse was distinct and promised to make a good cardiograph tracing, such as Professor Thompson hoped to make in a day or two. Pulsations were to be seen in the root of the neck, apparently three for each ventricular beat. The urine was clear amber colour, acid in reaction, sp. gravity 1020, and it contained a faint trace of albumen, but no sugar. The patient asked for, and was given, permission to get up out of bed.

After her dinner, at 12 30, she was proceeding with a nurse from one ward to another, for the purpose of having her weight registered, when she suddenly—without warning or cry—collapsed on her knees, and fell to the ground in a heap. Her muscles were completely relaxed. The house surgeon, Dr. Powell, was instantly summoned, and found her lying deeply cyanosed, pulseless at the wrist, and showing no evidence of respiration, except one feeble gasp. He thought she was dead. He immediately injected m^{vii} of liq. strychninæ and used artificial respiration, leaving her lying with a pillow under her head, and having hot bottles placed round her. She did not make any effort to respire for 4 minutes, and he would have given her up as dead, except that on auscultation the heart gave a feeble flutter. Oxygen inhalations were tried also. After some time, the artificial respiration being persevered in, the heart began to beat feebly, and respiration, somewhat stertorous in character, was resumed. After seven minutes the pulse at the wrist became palpable, and numbered about 40 to the minute. She was now

carried back to her bed, and when I saw her, 40 minutes later, she was still deeply unconscious, with the eyes turned up and the pupils most widely dilated. She then commenced to moan and cry. Her arms were folded across her chest in a tonic spasm, her body arched in opisthotonos, the face in trismus, and urine was passed under her; the tongue was slightly cut, although a gag had been employed from the moment this tonic spasm set in. Chloroform inhalations calmed the convulsions, and under its use the pupils became small—to a pinhole size; the heart reached 56 to the minute, while the respirations assumed a modified Cheyne-Stokes respiration ("Biot's respiration"). The respiratory rhythm showed a period of 70 seconds duration, in which respirations occurred, followed by a period of 26 seconds of complete apnoea, but the onset and cessation of respiration were quite sudden—the first and last breaths taken being of equal amplitude with the others. The pulse gradually sank to 40. After an hour the knee-jerk and conjunctival reflex were obtainable, though the pupils were again widely dilated. At 2 30 p.m. (that is, one hour and forty minutes from onset) the attack passed off, and the patient fell asleep. She awoke at 4 p.m., and was given 25 gr. brom. potass., and had three attacks of vomiting. Pulse and respirations were then noticed to be synchronous—viz., 28 in the minute.

The following morning (March 2nd) the patient was quite calm, but was totally oblivious of the entire of yesterday's attack, and, when asked, stated she had not got up at all, and was not sick in her stomach. Her pulse was regular, 36 in the wrist, and two tracings were made (Dudgeon's sphygmograph), one in the recumbent, the other in the sitting posture. They are the same in frequency, and exhibit a sharp up-stroke, which is short, followed by a prolonged line of gradual descent, which shows faint vibrations.

March 3rd.—A complaint of headache in the right temporo-parietal region. The tongue was a little sore from the effects of the fit of the 1st. The pulse was 22, and in a few minutes later it counted 32. It was weaker than usual, and somewhat irregular. Temperature, which had gone up to 99° on the 1st after the severe fit, had fallen to its usual subnormal standard of 97°. The tonic mixture of iron, quinine and strychnin, which

was resumed on the 2nd, was continued, as the patient felt it did her good; and, though very anxious to be allowed up, it was thought safer to keep her in bed—much to her chagrin.

March 4th.—Two rather severe attacks occurred between midnight and at 1 10 a.m., then several minor epileptiform attacks occurred this morning, and in the afternoon an almost continuous series of seizures. At noon, during a short attack, the heart beat 140 per minute for some time. At one period, towards the end of a fit, on auscultation, the usual infrequency of 24 beats were first heard, and suddenly it increased to about 150, and maintained this high rate for just 20 seconds, when it again suddenly fell to its usual, 24. In the afternoon a severe seizure came on at 4 p.m., and lasted four and a quarter hours. Cries and shrieks were emitted. convulsive spasms and opisthotonos occurred, while at times strabismus and Cheyne-Stokes, or Biot's type of, respiration were present, the pupils were widely dilated. Chloroform was freely administered, and at times artificial respiration had to be employed. The whole attack, which fortunately occurred while she lay in bed, closely resembled the bad attack of the 1st instant, and death seemed momentarily imminent. The pulse at 2 p.m. was 24, at 5 p.m. it was 150, at 6 o'clock 22, and after the attack, at 10 p.m., it was 32. The attack might be considered of a somewhat milder type, but it lasted much longer. It was succeeded by other shorter attacks at 9 p.m., 9 30, 10 30, and 11 p.m. Next day, March 5th, was marked for vomiting twice and six mild fits in the evening; the pulse at six observations being 26 to 32. Three fits occurred between 8 and 9 30 a.m. on the morning of the 6th, and in the last of these she died. The pulse at 2 and 6 a.m. being, as usual, about 28.

In the final syncopal attack of 9 30 every effort was made by the resident staff to restore life; and artificial respiration was kept up by the resident pupil, Mr. Gibbon, for fully twenty minutes, but all to no purpose, as she never breathed. No sign of life returned, and she was practically dead the instant of its onset.

This sudden termination of life was not unexpected, as the alarming symptoms and cardiac failure of March 1st

prepared us for the possibility of their recurrence and of death under these circumstances. Most unfortunately permission to make an autopsy could not be obtained, and thereby much pathological information has been lost.

REMARKS.

Of the many interesting clinical features presented by the foregoing case the first and most striking is the infrequency of the pulse—so-called “bradycardia.” This symptom is in itself not very uncommon, and every physician must occasionally meet with cases where the pulse-rate is slow, either temporarily or permanently. Indeed, during part of the time this patient was in hospital I had under my care two instances of this condition, though due to very diverse causes—one in a boy, aged six, who was unconscious, suffering from the pressure signs of tubercular meningitis, and the other in a man, aged seventy-two, presenting atheromatous arteries and fatty heart, in whom the pulse was 30 in the minute, and syncope attacks not infrequently occurred. The bulk of the recorded cases of slowly beating hearts belong to this latter group, and it was in such conditions, occurring in old men, that Dr. Stokes³ and Dr. Adams published cases of slowly beating hearts with paroxysmal syncope, or pseudo-apoplectic attacks—a group of symptoms now spoken of as the Stokes-Adams syndrome. It will be in the recollection of the Academy that last December Dr. Parsons⁴ submitted a very full communication and recorded the clinical features of a typical example of this condition in a male patient, aged sixty-eight years, who exhibited paroxysms of this symptom, with a pulse-rate of 30 to 40 in a minute, and who was afflicted with general arteriosclerosis.

Thirteen cases of bradycardia are collected and reported by Dr. Alfred Webster,⁵ in his valuable article on “Cardiac Arrhythmia in relation to Cerebral Anæmia and Epileptiform Crisis.” Of these seven were over fifty years of age, and all except two were males; and the

three cases which illustrated Dr. G. A. Gibson's paper⁶ on the same subject were in males aged eighty, sixty-eight, and fifty, respectively.

The case of Mrs. M'N., which I have recorded, makes, then, a marked exception, in that the regular infrequency of pulse, at the rate of 22 in the minute, was present in a woman, aged forty-two, and who was free from all cardiac valvular, and arterial disease, and whose kidneys and other organs were apparently quite healthy. As her case does not come under the class of cases due to either senility, with myocardial degeneration, or to arterio-sclerosis, the cause, therefore, must be sought for elsewhere.

The second important feature of my case was the arrhythmia. The pulse-rate, as a rule, day by day and month by month was between 21 and 28, and, as can be seen by the sphygmogram [exhibited] taken during 120 seconds, it was perfectly regular. Yet at varying intervals the pulse became irregular, and a state of pulselessness—lasting 5, 8, 12, or 15 seconds—would occur without any cause or influence that could be explained, and which culminated in the terrible attacks of pulselessness (lasting seven minutes) which occurred a few days before death, and in the last of such cardiac arrests she died suddenly.

During the shorter cessations of the pulse, careful observations of the heart by stethoscope and hand failed to detect any ventricular contraction by sound or impulse, and the solitary sphygmogram Prof. Thompson was able to make during one of the attacks of arrhythmia shows an absence of pulse-wave for 4 seconds, and again for 10 seconds. (See Fig. 2.)

The idea of independent auricular contraction was forced on my mind by the observation that for every ventricular systole the jugular veins at the root of the neck beat three times. I do not wish to imply I made a discovery, but I found a novelty in my clinical experience which I was able to study at my leisure, and under peculiarly advantageous circumstances, for not only was the phenomenon constant day by day, but the rate of the

pulse was always so slow or infrequent that it was easy to note these prominent features. This relatively want of synchronicity of the jugular pulsation and the heart's beat was not unknown to the great Stokes,⁸ and was recorded by him as having come on in the course of one of his cases of fatty degeneration of the heart with pseudo-apoplectic attacks in a man aged sixty-eight.

Since his time many observers have recorded the same, although all do not take the same view as to its mechanism.

The tracing of the pulsation at the root of the neck, kindly made for me by Prof. Thompson, shows this condition graphically, and it can be readily observed that two or three elevations occur in the jugular tracing during the diastole of the ventricle. (See Fig. 1.)

In this connection I would again emphasise the most valuable and, as far as I know, unique confirmation in the fact that the X-rays demonstrated a distinct double movement of the auricles for each ventricular movement—that is to say, there were three cardiac movements, in two of which the ventricles took no part. It also showed that both ventricles acted together, and that there was no “hemisystole.”

It is not my intention in this clinical record, even if it were in my power—which it certainly is not—to further discuss this most interesting and fascinating physiological and pathological subject, and I would refer to the works of Wenckebach,¹⁰ Alfred Webster,⁵ Mackenzie and Gibson,⁶ with their series of pulse tracings and other evidences, to prove the reality of this cardiac arrhythmia. I would adopt the words of Dr. John Hay¹¹—“Heartblock is no longer a theory; it is a fact, and has been recognised as such ever since Gaskell published his classical research on the contraction of cardiac muscle.”

Of the many contributions to the literature of the subject that have lately appeared in the medical journals, one in particular struck me as so very remarkable that I cannot refrain from referring shortly to it. It is a paper

by Henry Harford, of Nottingham, under the title of "Remarks on a case of Gummata of the Heart." ¹² He bases his remarks on a case of a married woman, aged thirty-two, whose death occurred from heartblock after many attacks of long pauses, in each of which death seemed imminent; and a syphilitic gumma was discovered in the anterior wall of the right ventricle, involving the auriculo-ventricular septum. "The prominent symptoms were, on several occasions on many different days, that the heart was observed to beat 84 per minute for a variable time, and then to stop for 5 to 15 seconds. During this interval, on auscultation over the right heart and over the pulmonary area, the auricles could be heard to continue beating. There was no second sound, no pulse could be felt at the wrist, and no cardiac impulse at the præcordia. The face became very pale; the patient had a slight convulsion affecting the face, arms, and legs; the eyes were turned upwards and to the left; a few inspirations (4 or 5) were taken, and the whole heart resumed regular and somewhat violent action." In one of these attacks the patient died.

In my case another and most interesting point in connection with the arrhythmia is suggested by the occurrence of the small sounds which have been heard in the intervals between the regular systolic ventricular contractions.

During most of these pauses perfect silence of all heart-sounds existed, and this was the rule. Yet, as I have recorded on a very few occasions one, two, or more distant sounds could be heard over the base of the heart; and these sounds were single sounds, not as if the heart sounds were re-duplicated.

These feeble distant sounds seemed to occur between the strong ventricular systolic sounds, to be unaccompanied by a pulsation over the ventricle, either the right or left, though sometimes a wavy pulsation could be seen above the fourth rib.

Three questions arise bearing on these sounds:—

1. Are the sounds due to a hemisystole of the heart—

the right ventricle contracting while the left does not—a view hard to understand, though propounded by Sir Wm. Broadbent,¹³ and supported by J. Seymour Maynard,¹⁴ and accepted, with great reserve, by Wenckebach? On this point I give no opinion: but the theory gains no support—nay, rather is refuted by the observations made by the aid of the X-rays.

2. Are these sounds produced by the rhythmic contractions of the auricles, acting alone, and unaccompanied by ventricular contractions?—a view favoured by Wenckebach, and supported by G. Gibson's and Malet's observations.⁹

3. Can they be produced by feeble ventricular contractions which are not strong enough to empty the ventricular contents into the aorta in sufficient volume to cause the closure of the aortic valves and so produce a diastolic second sound?

The last feature of interest presented by my case is the occurrence of paroxysmal unconsciousness and epileptiform attacks. These attacks came on at irregular periods and in varying degrees of severity, sometimes several in a few hours—6 to 12 in a day—and, again, not for some days; and in severity they varied from a sudden pallor, followed by a flushing of the face, to slight convulsive movements of hands and legs, with the eyes turned up and fixed; and again, to a more severe type, which caused a fall and more general convulsion, lasted longer, and out of it the patient came to more slowly and feeling strange and frightened; and the last attacks were signalised by prolonged unconsciousness and coma, with absolute failure of heart, and sudden death.

The question presses—Were these earlier fits examples of *epilepsia mitior* (*petit mal*) occurring in a woman, in whom were present cardiac infrequency and cardiac arrhythmia, simply as a coincidence? or were the cardiac affection and the fits in direct relation to one another as cause and effect, and, if so, did the fits cause the cardiac phenomena, as claimed by Tripier, or *vice versa*?

When the patient came under my care I was at first inclined to think she was suffering from epilepsy, and this opinion I based on her history—viz., that fourteen months before she had suddenly fallen in a fit, to which succeeded four others the same day; and that up to the day of admission to hospital she had had recurrence of fits. I accordingly gave her a course of treatment by the bromides, and had her under close observation. In a short time, however, I saw that the more likely connection between the fits and the slow pulse lay in the direction of the cardiac arrhythmia being the direct cause of the fits. Later on I could foretell by two or three seconds that a fit was imminent, and I was able to observe that the fits were due not simply to the infrequency of the pulse, for they did not occur even while the pulse-rate was as slow as 18 to 20 in the minute, but that they were sure to occur when arrhythmia occurred and when pauses of 8 to 10 to 15 seconds were noticed. It was the more prolonged cessation of circulation, and presumably the cerebral anæmia rather than venous stasis, which caused the syncopal and convulsive attacks.

That cerebral anæmia is a cause of convulsion is well known and daily verified, and the experimental work of Kussmaul and Tenner, by inducing cerebral anæmia and causing epileptic convulsions, is still uncontroverted.

For a full account of this subject in relation to arrhythmia I would again refer to the work of Dr. Alfred Webster. The conclusion he arrived at after analysing the clinical features of thirteen cases of slow pulse and epileptiform attacks, and after making many hundreds of observations and pulse tracings on his own case (included in the thirteen), seems to commend itself as the true explanation. "Our own experience,"¹⁵ he writes, "tends to show a slow pulse, 18 to 24 in the minute, with even a moderate degree of irregularity, is not associated with convulsions. For example, a pulse-rate of 20 in the minute, which means an asphyxial state of 3 seconds each, or even a pulse-rate of 12, which equals 5 seconds in each pause, is not enough,

so long as it is fairly regular; but when the pulse is irregular, then convulsions will be induced."

Accepting these conclusions—to which many recorded cases of "heartblock" conform—I would say, therefore, the arrhythmia, and not simply the bradycardia, should be looked upon as the causal factor in the production of the convulsions.

When, however, we look for the cause of the arrhythmia we must acknowledge we are not much nearer its discovery, as the only point of agreement between various observers on the Continent and America, as well as in this country, seems to be the absence of any gross lesion by which the symptoms of Stokes-Adams syndrome might be accounted for, if we except arterio-sclerosis of the basilar artery and the circle of Willis, and of the vessels of the medulla. Granting these pathological changes to be the cause, how are they applicable in such a case as that of Mrs. M'N.?

I shall not, therefore, take up more of your time in discussing the many theories propounded to explain it: and in recording my case—devoid, as it unfortunately is, of the results of a *post-mortem* examination—I am sadly conscious I have added little to the ætiology, and nothing to the pathology, of the condition. But if I have awakened an interest in the clinical record of a very unusual and rare case, and if the full details of its course to a fatal termination may stimulate others to a clearer conception and the unravelling of the mysteries attending bradycardia, I shall feel my claim upon your patience and time has not been unwarranted or misplaced.

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ART. XVIII. *A Case of Anæmia Splenica Infantum.*^a By
T. GILLMAN MOORHEAD, M.D. Univ. Dubl.; F.R.C.P.I.;
Physician to the Royal City of Dublin Hospital.

THE condition to which the name anæmia splenica infantum is applied or, as von Jaksch termed it, anæmia pseudo-leukæmica infantum, is not one of very unusual rarity, but as its exact relationship to other anæmias of infantile and adult life is still a matter of discussion, it seems advisable to report any cases in which full blood examinations have been made during life and in which a subsequent pathological examination has been possible.

The disease, as usually met with, is characterised by great splenic hypertrophy, slight liver enlargement, pronounced anæmia, and considerable leucocytosis, all occurring in a child of from six to thirty months of age. Variations in type and degree are, of course, met with, and much difference of opinion exists as to what classes of cases should be included in, and what excluded from, the group, and still more as to whether the disease should be recognised as a distinct clinical entity at all or not. To these points we may, however, return subsequently. The notes of the case are as follow :—

P. G., a boy, aged three years, was admitted to hospital on the 28th of August, 1905, with the following history :—He was the fourth and youngest child of the family, of which the two elder members, aged seven and five years, respectively, were alive and healthy. The third child, a boy, had died of convulsions when

^a Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, March 2, 1906.

a few months old. The father had died a month before the birth of the patient of phthisis, from which the former had been suffering for over a year. The mother, aged thirty-two, was a strong, healthy-looking woman who denied having ever had any sickness of any kind since childhood. A full examination of her did not reveal any tubercular or syphilitic taint. She stated that the patient had been perfectly well until a year old, but that since that time he had gradually become more and more pale. When two years old he had an attack of measles, for which he was treated in hospital, and a few months after this sickness she observed that his abdomen was becoming swollen, and also that there was some swelling of the feet and lower eyelids. At the same time he became very weak and unable to support his own weight in the upright position. On admission the child was seen to be of a uniform pallid appearance, practically no tinge of colour being visible in the conjunctiva or mucous membranes. The anterior fontanelle had not quite closed, and was slightly depressed. There was no evidence of cranio-tabes and no bossing of the cranial bones. All the milk teeth were present and well formed, but the gums were spongy and bleeding. The cervical and axillary lymph glands were slightly enlarged, but the inguinal glands were apparently of normal size. There was slight rickety beading at the junction of the ribs and costal cartilages, and also some thickening of the bones of the wrists and ankles. The lungs and heart were quite normal. The abdomen was enormously distended, with protrusion of the umbilicus and slightly distended parietal veins. On the left side the spleen could be felt with ease, forming a large tumour which extended downwards as far as Poupart's ligament and forwards as far as the umbilicus. It was apparently not tender on pressure, and no rub could be heard over it on auscultation. The liver also was enlarged, extending down nearly to the level of the umbilicus, and a small amount of ascitic fluid was detected. Temperature normal; weight, 1 stone 5 lbs.; urine contained a little albumen, but no casts.

Blood Examination.—The red cells numbered 1,984,000 per c.m. They showed great variation in size, with marked poikilocytosis and polychromatophilia. Nucleated cells, mostly of normal size, but many with divided nuclei, were present in the

proportion of 1 per 2,000 normal cells ; hæmoglobin 52 per cent. The white cells numbered 9,660 per c.m., and gave the following differential count :—

Lymphocytes	-	-	-	40	per cent.
Hyaline cells	-	-	-	15	per cent.
Eosinophile cells	-	-	-	2	per cent.
Neutrophile cells	-	-	-	42.5	per cent.
Basophile cells	-	-	-	.5	per cent.

A few granular myelocytes were constantly present, and a large proportion of the neutrophile cells contained a horse-shoe or transitional nucleus. Most of the lymphocytes belonged to the large lymphocyte class. The treatment adopted was the exhibition of iron and arsenic, with cod liver oil, an abundant proteid diet, and bone marrow. For a time, also, small doses of grey powder were given, but this was discontinued owing to the onset of diarrhoea. The appetite was extremely good—indeed, somewhat voracious—and the child apparently steadily improved for three weeks, the spleen getting smaller and the weight increasing slightly. At the same time, however, the number of red cells steadily diminished to a little over a million per c.m. After three weeks the temperature rose to 101° F., and from that on till the child's death, eight weeks later, never again settled down steadily. During this time the size of the liver varied considerably, at times extending below the umbilicus and again retracting up almost under the ribs. The spleen on the whole became smaller and ultimately somewhat tender on pressure. A mitral and pulmonary systolic murmur also gradually developed, and the apex beat became displaced outwards to the anterior axillary line. No important blood alteration took place ; the red cells sank to about 1,000,000 per c.m., but the white cells remained at about 10,000 per c.m., with an average of 50 per cent. of the non-granular cells. Some increase in myelocytes and nucleated red cells was also noticed, and the hæmoglobin fell to 40 per cent. X-ray treatment was carried out by Dr. C. M. Benson, who exposed the child altogether on fourteen occasions, for ten minutes at a time, the rays being directed upon the spleen. No apparent good effect was, however, produced, and nothing else of note was observed till the 29th of October, when the temperature began to fluctuate widely ; some

crepitus was heard at the base of the left lung; the child became very peevish and irritable, and finally died quite suddenly on November 2nd.

Autopsy.—The heart was unusually large for the age of the child, but the valves were quite healthy. The walls were pale, but proved normal on microscopical examination. All the chambers were dilated, especially the left ventricle, which showed an extreme degree of widening. The lungs presented some cedema at the bases and also a few broncho-pneumonic patches. Small sub-pleural hæmorrhages were present, scattered over the surface of both lungs. The bronchial and anterior mediastinal lymph glands were enlarged and of a deep red colour. The thymus gland was small and atrophic. The spleen was firm and hard, and of a deep red colour on section. Its capsule was thickened here and there, and the phrenico-colic ligament was stretched out as a thin band along its outer surface. The Malpighian corpuscles did not show clearly. The liver was considerably enlarged, was very pale in colour, and apparently fatty. The kidneys presented a number of subcapsular hæmorrhages, and also showed multiple small hæmorrhagic infarcts, while the entire pelvis of each kidney was filled up with one large blood clot, which extended a little distance down the ureter. The intestines were very anæmic, and showed enlargement of the agminated and solitary follicles. The pancreas and suprarenals were normal. The abdominal lymph glands were divisible into two groups—the first, the mesenteric glands, which were white and cheesy on section, and evidently tubercular, the second group comprising the aortic and iliac glands, and also those along the upper margin of the pancreas and along the lesser curvature of the stomach. These were all greatly enlarged and of a deep red colour, resembling in macroscopic appearance pieces of spleen tissue more than anything else. They formed very striking objects within the abdominal cavity, and appeared to be not only greatly increased in size, but also in number. The glands of the inguinal and axillary regions presented a somewhat similar appearance, but were not so large.

MICROSCOPICAL EXAMINATION.

Spleen.—The capsule was considerably thickened, and

numerous fibrous and hyaline trabeculae passed from it into the spleen pulp, which latter exhibited marked fibrosis. The Malpighian corpuscles were small, and the large majority of them were replaced by nodules of hyaline material, which had apparently spread out from the wall of the central artery. The endothelial cells of these vessels were in many places proliferated, and occluded the lumen. The pulp spaces were densely packed with red blood corpuscles, including, as would be expected, some normoblasts. A few eosinophile cells were found scattered in groups here and there, but no basophiles or megaloblasts were seen. The whole organ presented in fact the appearance of chronic fibrosis. There was no sign of tuberculosis. The *liver* showed some fatty change (degeneration) here and there throughout its substance, but not in great abundance. In most of the portal systems surrounding the vessels were groups of lymphoid cells, and occasionally distinct adenoid nodules. No other form of leucocyte was found, except for an occasional granular cell within the capillaries. Many of the blood vessels had thickened and hyaline walls. The cheesy-looking mesenteric *lymph glands* proved, as was expected, to be tubercular, and a few scattered tubercles were also found in some of the other glands. Most of the latter dark red glands, however, presented an appearance similar to what was found in the spleen—i.e., there was diffuse fibrosis, with here and there strands of hyaline material, and the blood vessels were thickened and hyaline; the endothelial cells of the stroma had undergone a great amount of proliferation. In the looser parts of the tissue groups of eosinophile cells were found, ten or twelve in number, some of which were mononuclear, and a few normoblasts were also observed. The *kidneys* presented nothing abnormal with the exception of the infarcts and hæmorrhage already referred to, and slightly marked arteriosclerosis. The *pancreas*, *adrenals*, *thyroid gland*, and *myocardium* were normal. The Peyer's patches presented the appearance of general hyperplasia, and the lungs, as before stated, were broncho-pneumonic and congested in parts. Many of the organs were stained for micro-organisms, but with negative results. The *bone marrow* of the femur and tibia was studied, and appeared normal, the mononuclear cells largely predominating. No abnormal forms of red cells were found.

The case is, I think, obviously an example of the disease described by von Jaksch, presenting as it does the evidence of mild rickets and the characteristically large number of normoblasts within the blood. The tuberculosis of the abdominal lymph glands must be regarded as a secondary infection, though apparently an unusual one, inasmuch as I have been unable to find any record of such an occurrence in any of the recorded cases which came to an autopsy. The condition of the non-tubercular glands is interesting, and conforms in the bright red colour and in their enlargement to what has been previously noted by some observers, notably Hunt and Telling. The latter observer says that the glands in his case had undergone a complete myeloid transformation, but from the literature this must be very rare, and was certainly not present in my case. The splenic change was in every way typical, except that oxyphile cells were scanty in the pulp. This is, however, common enough, and indeed the reported cases might almost be divided into two groups, according as these cells are or are not present in abundance throughout the body. The symptoms, however, appear to be the same in all cases.

A hæmorrhagic tendency is generally present in a more or less marked degree, although Hutchison, who has had an extensive experience, denies the fact. Extensive hæmorrhage is, however, rare, and I have found only one other case, that of Hunt, in which kidney hæmorrhages took place. In that case also the bleeding was found only *post mortem*. The absence of leucocytosis does not appear to have any special significance, as counts as low as 1,800 per c.m. have been recorded.

Since the name was first applied to the disease an enormous number of cases have been reported, and the most diverse views have been put forward with reference to its causation and to its relation to the adult anæmias. It seems to be pretty generally agreed that it is identical neither with splenic anæmia of adults nor with any of the varieties of leukæmia, and most authors regard it now as a disease *sui generis*. There still exists, however, much

evidence to favour the view that it is really a secondary anæmia, and may be produced by any cause of cachexia, such as rickets, congenital syphilis, or chronic gastrointestinal catarrh. Into this vexed question I will not enter further than to say that in the present instance there was no evidence either of syphilis or of catarrh, and that the rickets was apparently of a very mild type. If rickets really has any influence in causing it, the disease should surely be much more common than it is, and should be found more often in the severer types of that affection. The clinical picture is certainly sufficiently striking and sufficiently constant to justify our regarding it as a distinct entity.

ART. XIX.—*Carcinoma Cutis, with Notes of Two Cases*—

(a) *Cancer en Cuirasse*; (b) *Paget's Disease of Nipple*.^a

By C. M. O'BRIEN, M.D.; L.R.C.P.I.; Physician to the City Hospital for Diseases of the Skin and Cancer, Dublin.

BELIEVING the subject of carcinoma cutis to be of equal interest to the surgeon and physician I am induced to bring before the Medical Section of the Royal Academy of Medicine, in the form of a brief communication, the two cases mentioned in the agenda. I do so without any desire whatever to encroach on the existing preserves of surgery, and even the most incredulous will acquit me of any such intent when I say that one of the cases to which I shall presently allude sought my advice only after all surgical interference had been previously refused her; while in my second I could not at any time during my attendance even now conscientiously relegate it to surgery.

Hitherto it has been my custom to exhibit the cases which have been the subject of my communications, ensuring by this method of procedure the gratification of

^a Read before the Section of Medicine in the Royal Academy of Medicine in Ireland, on Friday, December 8, 1905. [For the discussion on this paper see page 125]

having my diagnosis either confirmed or corrected. This time, however, I am prevented from so doing by reason of the fact that one of my cases, that of a woman who presented herself at the Skin Hospital in June, 1904, when this Academy had dissolved for summer recess, got bed-ridden in August, and died the first week in December: while as to the second case—that of a private patient, a man occupying a prominent position in commerce—I am prevented by reason of his social surroundings. Under-mentioned are details of the cases:—

CASE I.—A woman, aged thirty-nine, married, no family, was admitted to the Skin Hospital on June 4th, 1904, complaining of slight soreness of right breast, with stabbing pains.

Personal History.—The patient stated she always enjoyed excellent health until about a month previously, when her attention was directed to the right breast, which appeared fuller and heavier than normal, with darting pains occasionally. The pains were often relieved by pressing the breast with her hands. A fortnight before her admission to hospital she presented herself at one of the city hospitals, where the visiting surgeon and his colleagues, after examining her, declined to operate.

Condition on admission to Skin Hospital, June 4th, 1904.—The skin over right breast, to the extent of two square inches, including the nipple and areola, was thickened, dry and leathery, and of a darkish green colour. On manipulating, it was found adherent to the gland, but the breast moved freely over the underlying ribs. The glands in the axilla were not perceptibly enlarged. The left breast was perfectly normal. In the hope of mitigating her suffering, which was daily becoming more pronounced, she got ten minutes exposure to the X-rays four times weekly, and, although the pain almost entirely subsided, nevertheless the disease continued to rapidly spread, so that in a month after her admission almost the entire skin over gland was involved, and a fortnight later the skin over upper surface of left breast, to the extent of a five shilling piece, became attacked, first assuming a pale glassy appearance, somewhat thickened and strongly suggesting scleroderma, but afterwards changing to a dark green. The gland and superficial tissues of the left breast

were in the early stages quite free, later becoming involved, forming a rigid casing continuous with that of the opposite side, giving rise to laboured breathing, pallor, and very progressive weakness, the patient describing her hapless condition as if her chest were pressed in a vice. She left hospital on August the 27th, after a stay of about ten weeks. The disease by this time having spread to the right axilla and skin over inferior angle of scapula, forming a complete casing for right side of chest, front and back, on auscultating over which greatly diminished breath sounds were perceptible. The heart and internal organs generally were healthy. No family history of cancer. She died in extreme agony on December 4th, 1904. There was no *post-mortem*.

CASE II.—Mr. R., aged fifty-three, unmarried, managing director of a large flour mills and bakery, consulted me in January, 1904, for a patch of roughness round right nipple, which had persisted for nearly eighteen months, notwithstanding his having applied various ointments, and later tincture of iodine, thinking he was suffering from ringworm, which affection he contracted as a boy. There was slight discharge but no actual pain.

On examination, in January, 1904, the right nipple, although not perceptibly retracted, was covered with branny scales, as was also the areola; the base of the nipple was slightly fissured, and presented some oozing; there was considerable pain on manipulating it. The treatment for eczema was prescribed and carried out. I next saw him early in February, but could not detect any marked change. Between February and July I saw him twice; I again saw him in October, when he complained of its becoming itchy, and of its having bled slightly. The fissure of nipple before referred to had by this time extended to areola, the patch had increased in size, redness had become more pronounced, especially at circumference, while towards the centre there was oozing, with a sodden condition of epithelium. Some of the adherent scales were now removed by forceps and placed under microscope in a forty per cent. solution of caustic potash, with negative results. The fissures were now touched with nitrate of silver stick, while the usual remedies for eczema were further persisted in. I saw him again in January and July,

1905; there was more oozing, the eroded patch being studded here and there with bright red spots, which bled freely on being touched. The margin, though well-defined, was not raised; the nipple was not retracted. He consulted me again last month, when the sore presented pretty much the same characteristics as those mentioned as having been present in July. Careful examination on each occasion could elicit no tumour in breast, nor involvement of glands in axilla.

There was no history of cancer or psoriasis in family. The patient never had specific disease.

CONCLUDING REMARKS.

Case I.—*Cancer en Cuirasse*.—Interested me because of (a) the age, which was much below the average at which recorded cases of this nature occur; (b) the non-involvement of the lymphatics, as evidenced by the absence of œdema of the upper extremities; (c) the absence of ulceration throughout; (d) the slowness with which it caused fatal results.

Case II.—*Paget's Disease*.—My case as above recorded may admit of discussion, because the positive exclusion of chronic eczema is difficult in this, as in all such cases, at an early stage. Possibly its presence in the male may lead to some increased facilities for controversy, and even excite in the minds of others opinions perhaps unfavourable to, or suspicious of, the diagnosis, although in the literature of the affection from 1874, when first described by Sir James Paget, down to the present nothing can be discovered to explain why it should not occur in the breast of a male.

I have based my diagnosis on the age of patient, the short limitation of patch, with its red, raw granulating appearance, coupled with the fact that for nearly two years it has failed to yield to almost every well-known remedy for eczema. Whether subsequent events in its history confirm or disprove that diagnosis I am not prepared to say, but for the sake of humanity I shall hope for and welcome the latter.

Apropos of this, my friend, Professor Gaucher, of Paris, recently showed me a case—"Maladie de Paget"—under his care at the Saint Louis Hospital, which I consider a parallel one to mine, excepting, perhaps, that his was slightly more advanced, and occurring in the female.

ART. XX.—*Intubation of the Larynx in Cases of Diphtheritic Dyspnœa.** By GEORGE B. McCaUL, M.A., M.D. (Dubl.); Junior House Physician, Royal Infirmary, Bristol.

EXCEPT in those cases of diphtheria where the disease primarily attacks the larynx it is comparatively rare, with the enlightened treatment of the present day, to meet with laryngeal complications. Hence it is not so often necessary to have to resort to operative measures now-a-days as it used to be over ten years ago before the use of antitoxic serum became general. However, many cases still come up to the Bristol Royal Infirmary which are untreated in the early stages, and are admitted, requiring immediate operative treatment. This is indicated in all cases of increasing and persistent dyspnœa due to mechanical obstruction in the larynx and upper part of the trachea. The chief symptom of obstruction is recession of the soft parts of the chest during inspiration. If this is combined with alteration or suppression of the voice and convulsive movements of the larynx—the so-called laryngeal excursions—then we know that the obstruction is situated in the larynx. If these symptoms are not relieved by the use of a steam tent, then the sooner some active treatment is adopted the better. Many lives are undoubtedly lost in diphtheria by not operating soon enough—by waiting too long in the hope that the dyspnœa will pass off. The child becomes worn out by the strain of breathing and by the semi-asphyxiation, dying of exhaustion and heart failure, even when tracheotomy has in the end been performed.

* A Thesis read for the Degree of Doctor of Medicine of the University of Dublin, December 19, 1905.

The choice of treatment in these cases lies between tracheotomy and intubation of the larynx.

As intubation is a comparatively uncommon procedure in this country it may not be amiss if I describe how it is done, and then compare it with tracheotomy. The instruments required are a mouth gag, an instrument to hold the tube when introducing it and another for extracting it. The size necessary varies with the age of the patient, but all fit the same introducer. The best set of instruments to use is that invented by Dr. O'Dwyer, of New York. The top of the tube has a perforation, through which a piece of silk ligature is passed for use in removal. The child is wrapped in a blanket to secure the limbs; is held firmly in a sitting posture in a nurse's lap, and its head is kept steady by one hand of an assistant, whose other hand opens the jaws with the mouth gag, and holds them widely apart. The operator sits in front of the patient, passes the index finger of his left hand into the child's pharynx, and feels for the epiglottis, which he raises and pulls forwards. With his right hand he introduces into the mouth the tube on its holder, hugging the base of the tongue in the middle line until it touches the epiglottis, and then on past the epiglottis into the larynx. No force must be used. He then places the left index finger against the top edge of the tube, pressing it down into the larynx while he withdraws the introducer. The collar or head of the tube then rests upon the false vocal cords. As soon as the introducer is removed there is usually a violent expiratory effort, causing a peculiar rattling sound, accompanied by a gush of muco-purulent matter or membrane from the tube, and after this escapes the breathing is usually satisfactorily established. Assist its escape by inverting the child for a minute or two and encouraging him to cough it out. The silk thread is fixed to the cheek with some adhesive plaster, and the nurse is directed to employ the thread to remove the tube if it is coughed up into the pharynx or becomes suddenly obstructed. The child's arms should be splinted to prevent its pulling the tube out. If the patient should

bite through the ligature the extractor would have to be used in order to remove the tube. Its use is scarcely ever required if the simple precaution is taken to pass the ligature in between the two lower incisor teeth. The tube is left in for forty-eight hours. If the breathing is then easy it is not re-introduced, but if the dyspnœa should return it is replaced for two or three days more. It may be necessary to do this several times. The use of anti-toxin serum has greatly enhanced the value of intubation by lessening the average number of days during which the tube must be kept in from about seven to four. In many cases, after the swelling of the laryngeal tissues subsides, the tube is coughed up, and its re-introduction is not often required in these cases. After it has been removed or coughed up the patient should be carefully watched for a day or two, as the dyspnœa may recur at any time, and require replacement of the tube. If, when introducing the tube, a mass of false membrane should be pushed before it into the trachea breathing ceases, and if the mass is too large to be expelled through the tube the latter should at once be pulled out again. If the obstruction is not then removed by the expiratory efforts of the patient tracheotomy must be rapidly performed. This accident occurred twice in the cases presently to be mentioned. Its rare occurrence, however, teaches us that we should never introduce an intubation tube without having the necessary instruments all laid out to do a tracheotomy if it should be suddenly required.

As regards after-treatment, if there is any difficulty in swallowing with the tube *in situ* it will often be got over by having the head dropped a little lower than the body during the act of deglutition. Liquids, as a rule, are not swallowed well, a portion of them escaping into the tube and producing violent coughing. Foods of a semi-solid consistence are usually swallowed without difficulty. Some cases require to be fed through a nasal tube.

Except in the rare cases of primary tracheal diphtheria, or where marked swelling of the tonsils and naso-pharynx

in itself causes obstruction, I am of the opinion that intubation is much to be preferred to tracheotomy, and I hope to prove that its more general use in hospital practice would be a great step towards lowering the heavy mortality in these operative cases. The danger of the tube becoming blocked up or coughed out with immediate return of the dyspnoea is an objection which precludes its use in private practice as compared with tracheotomy. But in a hospital, where skilled assistance can be immediately procured, it is *par excellence* the best treatment.

Since we have been using at the Bristol Royal Infirmary large doses of serum combined with intubation there has been a remarkable decrease in the mortality. Out of a total of 300 serious cases treated there during the last nine years, in 36 cases it was necessary to perform tracheotomy, of which 25 died; whereas in 85 equally severe cases which were intubated there were only 15 deaths. In other words, the mortality following tracheotomy was 69.4 per cent. as against a mortality of 17.6 per cent. after intubation.

In addition there were 40 cases in which it was necessary to do both tracheotomy and intubation. Of these 27 died—a mortality of 67.5 per cent. These figures would seem to show that even if intubation does not alone suffice to relieve the dyspnoea, at any rate the mortality following the combined methods of procedure is no worse than after tracheotomy alone. You may wish to know why it was necessary to follow up intubation with tracheotomy in so many cases. Well, in 32 cases intubation alone was unsuccessful owing to obstruction below the tube by membrane in the trachea—this being present on first intubating, or coming on subsequently. Blocking of the tube by membrane pushed down during introduction occurred only in two cases out of the total 125 intubations. Coughing up of the tube with sudden recurrence of the dyspnoea occurred in two cases. Œdema of the aryteno-epiglottidean folds prevented re-intubation in one case; while one patient stopped breathing during intubation, necessitating immediate tracheotomy. Three cases in

which dyspnœa constantly recurred immediately after removal of their tracheotomy tubes were cured by intubation until the wound in the neck had closed up.

In my opinion the advantages of intubation outweigh the disadvantages. These advantages are:—

(1.) Great diminution in the mortality as compared with tracheotomy. This is more particularly noticeable in the first three years of life. Over six years of age it is probably less suitable than tracheotomy.

(2.) The absence of any wound in the neck. This is a material advantage, more particularly in female cases.

(3.) Celerity. The time usually required, after the gag has been inserted for the introduction of the tube and withdrawal of the holder, is 5-10 secs.

(4.) Much less danger of subsequent pneumonia. Nearly half the deaths following cases of tracheotomy are due to broncho-pneumonia. I could find mention of only five cases of subsequent pneumonia out of 83 intubations.

(5.) After a little experience intubation is easier to perform than tracheotomy.

(6.) In hospital practice intubation throws less work on the nursing staff.

The disadvantages of intubation urged by various authors are:—

(1.) Risk of separation of membrane and its being pushed down before the tube during introduction, blocking the lumen of the tube. The patient may then die before tracheotomy can be accomplished. This accident occurred twice in my series of cases, but in both the child's life was saved by prompt tracheotomy.

(2.) Risk of child coughing up the tube and dying from asphyxia before the tube can be replaced. This was the cause of death in one case. In many other cases the tube was coughed up at the end of a couple or three days without any return of the dyspnœa. In two cases dyspnœa recurred, necessitating tracheotomy.

(3.) Difficulty of membrane, when detached, escaping through the tube. As for this, I have on three occasions

seen a complete membranous cast of the trachea coughed up through an intubation tube.

(4.) The only cases in which I think that intubation is a positive disadvantage are those which develop pneumonia. In these cases it is not possible to keep an intubation tube clear of the sticky pneumonic secretion, which soon almost blocks the tube up, so adding to the dyspnoea. In cases which develop pneumonia subsequent to tracheotomy the tube has a greater air capacity, and so the patient can get air without any straining; the inner tube can be changed two or three times a day, and, in addition, the nurse, by stimulating the tracheal mucous membrane with a feather, can make the patient cough up considerable quantities of the viscid sputum. The lower parts of the trachea and the bronchi are thus kept more free for the passage of air. Intubation cases which develop pneumonia always do much better when the tube is removed and tracheotomy is substituted. Even if they do not recover they have, at any rate, a more painless death.

Although tracheotomy is doubtless a somewhat easier proceeding for those who have no experience of intubation, still, when the experience can be obtained, intubation would seem to be worthy of a more extended trial than appears to have been given it in this country.

ART. XXI.—*The Intramuscular Injection Treatment of Constitutional Syphilis.*^a By HUBERT RODNEY ROSS FOWLER, B.A. Cantab., M.D. Univ. Dubl., D.P.H.

WE as a nation are dependent to a great extent on the efficiency of our army, and that efficiency on the health of the troops. A large proportion of the latter are the victims of acquired syphilis. It is, therefore, very important that every effort be made to successfully combat this hydra-headed and fell disease. Having been employed for the last six years in dealing with a large

^a A Thesis read for the Degree of Doctor of Medicine of the University of Dublin, February 27, 1906.

number of such cases, I have had an opportunity of forming an opinion with regard to the various methods of treatment adopted. Mercury is accepted by all as the only specific in this disease, but as regards the method of introduction into the system there is great diversity of opinion. The three methods in use are (1) ingestion; (2) inunction; (3) injection, subcutaneous and intramuscular.

It is with intramuscular injection that I propose to deal as it is the method now generally employed in the army. It possesses all the advantages of the other methods without their defects, and has special good qualities of its own. It is, in my opinion, the most efficacious and satisfactory method for the administration of mercury in constitutional syphilis.

The main advantages are:—

- (1) Certainty of absorption.
- (2) Accuracy of dosage.
- (3) Rapidity with which the patient is got under the influence of mercury, and, therefore—
- (4) Less time in hospital.
- (5) Diagnostic value—*e.g.*, to differentiate a gumma from a malignant growth.
- (6) Absence of gastro-intestinal trouble.
- (7) No necessity of taking medicines.
- (8) The patient is under control and observation.

The last advantage is not the least in the case of soldiers, as the personal superintendence of their treatment is of paramount importance. The many advanced and serious cases formerly so common were no doubt in great measure due to the fact that the medicines given out were never taken.

The absence of gastro-intestinal trouble, especially liable to occur in hot climates when mercury is given by the mouth, is also an important factor.

The disadvantages are:—

- (1) Those common to all forms of mercurial administration, but in a less degree.
- (2) *Pain*.—This is the one real objection to the method.

It varies considerably according to the patient, the preparation used, and the manner of injection.

(3) *Dangers.*—The occurrence of infiltrations, abscesses, fat embolism of the lungs.

Mercurial Stasis.—In some cases mercury ceases to be absorbed, and that which has already been absorbed to be eliminated. This condition is known as mercurial stasis, and is of grave danger to the patient.

Personal Experience.—In over 400 cases that I have treated personally by intramuscular injection pain has been rare, as can be conceived from the fact that men undergoing this treatment were as a rule performing their ordinary duties, and mounted troops were no exception.

Abscesses.—I have had experience of only one which required incision, and this was probably due to faulty technique.

Infiltrations.—If a skiagram be taken about four hours after an intramuscular injection it will show a zone of minute particles of metallic mercury spread out along the intermuscular septa. In a normal case this will have nearly disappeared in forty-eight hours, and in ninety-six hours no trace will be left. A lack of this dispersion will cause a node to form which can be felt as a small round resistant lump. They give little trouble, and generally disappear in from ten to fourteen days. They are more liable to occur when exercise is debarred from some other cause, as a sprained ankle.

Of the more grave possibilities—fat embolism and mercurial stasis—I have no personal knowledge.

Unsuitable patients are those of neurotic tendency, of marked cachexia, those suffering from nephritis or having many carious teeth.

MATERIALS INJECTED.

Soluble or insoluble salts of mercury. Each has its advantages and advocates.

I. *Soluble Salts.*—Commonest in use is perchloride of mercury $\frac{1}{4}$ gr.

Advantages.—Any desired quantity can be introduced daily, and is rapidly absorbed. They are very useful in cases where a rapid reaction is required, such as acute syphilitic œdema or stenosis of larynx or trachea, and a threatened tracheotomy may be avoided; also in cases requiring frequent small doses, such as syphilitic caries, ophthalmia, and tuberculous cases.

Disadvantages.—Frequency of injection. In dealing with a large number of men time would not allow of this. Pain is variable; inflammatory reaction rare.

II. *Insoluble Salts.*—Object of use is to introduce into the system a store of mercury to act as a supply depôt and to be gradually absorbed.

Advantages.—Fewer injections; no waste of time.

Disadvantages.—Impossible to get rid of mercury in body if mercurial poisoning should take place. Pain: variable.

Material used.—Calomel was once used considerably, but it caused much irritation, and its use has been discontinued. The following is the preparation that has given good results, has very rarely caused pain, and is in general use in the army. It is called grey oil:—

- | | | | |
|----------------------------------|---|---|----------------------------------|
| R. Metallic mercury | - | - | 3i. |
| Lanoline, sterilised | - | - | 3ii. 5 m = $\frac{1}{2}$ gr. Hg. |
| Carbolised paroleine, sterilised | - | - | 3ii. |

These ingredients are rubbed together in a sterilised mortar for four hours. The resulting mixture should then be put in small oval phials, with accurately fitting stoppers, and kept in a cool place. Before use the flask is placed in a beaker of water at 80° F., and kept at that temperature.

Syringes should be all glass, to enable perfect sterilisation by boiling. The graduations should be in minims, and the capacity 50 minims.

Needles are best of platino-iridium. They are then unaffected by mercury, and can be sterilised in a naked flame. They should be $1\frac{1}{2}$ inches long and also strong. Before use they should be kept for fifteen minutes in boiling olive oil (temperature 240° F.).

Site of Injection.—The buttock is the safest situation. A line joining the great trochanters across the buttocks will give the horizontal limit, $\frac{1}{2}$ inch, above which the injection should be made, and the perpendicular line may be taken as two fingers' breadth from and parallel to the intergluteal fold. This area is well away from the sciatic nerve and gluteal vessels.

The part is washed with soap and water and cleaned with alcohol.

Technique of Injection.—Having filled the sterilised syringe with the grey oil the needle is adjusted. The needle end of syringe is then raised and a minim or so of the oil expelled in order to get rid of any air bubbles that may be present. The level of the oil is then noted. Next the needle is passed through the flame of a spirit lamp and immediately introduced into the selected part to the depth of about an inch. The patient is meanwhile standing, with the knee of the side selected flexed in order to relax the gluteal muscles. Having slowly injected the required amount, the needle is withdrawn, and a little cotton wool and collodion applied to the puncture. Some authorities advise the separation of the syringe from the needle after the latter has been introduced into the muscle to make certain no vessel has been entered inadvertently. This appears to me to give additional scope to sepsis and to be quite unnecessary. The site of injection is changed week by week from one buttock to the other.

Time to Begin and End Treatment.—In all conditions whether the primary sore is unquestionably syphilitic, or one of those frequently met with, regarding which it is impossible to make a definite diagnosis till secondary symptoms supervene, I would advise treatment on the above lines.

The injections should be given weekly, the usual quantity of oil injected being 5 minims for a man of average physique and equivalent to $\frac{1}{2}$ gr. Hg. This should be continued till definite improvement takes place, which averages from two to three months. The injections may

then be given fortnightly, and should be continued till all manifestations of syphilis have been absent for six months. The average length of treatment with troops is two years. During treatment the weight of each patient should be taken every week, the urine examined, and the teeth and gums inspected. As a rule the weight increases, and is an index to a successful result.

Scrupulous care of the mouth and teeth is necessary. Mouth washes should be used frequently, the best in my experience being one of potassium chlorate and borax. Mucous patches are best treated with solid silver nitrate, and condylomata with calomel fumigation.

General Treatment.—The patients undergoing this treatment should be out of doors as much as possible, have plenty of light exercise, a full diet, and a restricted allowance of stout.

ECLAMPSIA IN MULTIPARÆ.

In the *Journal of Obstetrics and Gynecology of the British Empire*, April, 1906, Dr. H. Russell Andrews reviews a paper by Cova (Ercole) which appeared in *La Ginecologia*, Oct. 31., 1905. Among the last 80 patients with eclampsia in Professor Pestalozza's Clinic in Florence there were 33 multiparæ. This percentage of multiparæ, 41.25, is higher than that recorded in the statistics published in any of the twenty-six papers quoted by Cova. An interesting point not noted by the author is that there was not one case of twins among his 33 patients. In one of his fatal cases there were 14 fits before and during labour, and 89 after. Cova draws the following conclusions from the study of his own statistics and those of others. Eclampsia is much more rare in multiparæ than in primiparæ. In multiparæ it is likely to occur at a more advanced period of pregnancy, and unexpectedly, without prodromal signs and symptoms. In a third of Cova's cases the time of onset of the convulsions was during the puerperium. The tendency to hæmorrhage is more marked, the prognosis is graver, and the mortality varies directly with the number of previous pregnancies. The prognosis for the foetus also is more grave than in the case of primiparæ.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

RECENT WORKS ON ANATOMY.

1. *Ellis's Demonstrations of Anatomy*. Revised and Edited by CHRISTOPHER ADDISON, M.D., B.S., F.R.C.S. Twelfth Edition. London. 1905.
2. *Surface Anatomy*. By RICHARD J. BERRY, M.D., F.R.C.S.E., F.R.S.E., &c. Edinburgh. 1906.

1. *ELLIS'S "DEMONSTRATIONS OF ANATOMY"* has served as the handbook of so many generations of medical students that we welcome with pleasure a new edition, in which the arrangement of the subject-matter is brought into agreement with the order of study at present adopted in the vast majority of dissecting rooms in Great Britain and Ireland. In spite of the many changes which the editor has introduced, he is to be congratulated upon having retained so many of the characteristics of the earlier editions. A single volume, of convenient shape and size, contains the anatomy of the entire body, and useful marginal notes, as in the former editions, afford rapid reference to information sought. As was to be expected, certain sections of the work have required more revision and alteration than others, and, perhaps, the greatest number of changes have been made in the pages dealing with the abdominal contents. Many new illustrations have been added, and some of the older ones have been improved. There are still, however, a few figures, among which is a drawing of the spleen (Fig. 129), which might well be replaced. The drawings of the bones, with the attachments of the various muscles indicated in colour, which have been inserted, will be found a great help by students. Such drawings were, we believe, first introduced into a dissecting room text-book a few years ago by the late Professor Alfred Hughes. Their presence in the later editions of our standard

practical anatomy books is an indication to students that the bones cannot be neglected by them in their dissecting room work or studied merely as an isolated part of anatomy.

2. WITHIN the last few years we have had quite a number of new works on Surface Anatomy which more or less closely resemble one another in the arrangement of their contents. In the most recent of these, Professor Berry's, the various surface markings having been described in some detail, the relationships of the more important deeper structures to the surface are considered. In very many instances descriptions of the deep relationships and of the connections of the more important organs are included. Considerable space is devoted to the ear, nose, and pharynx, and the appearances of these parts when viewed with the aid of instruments commonly employed in medical practice. In like manner a short account is given of the appearances presented by the interior of the bladder when examined by the cystoscope. Two of the most useful sections are the chapters dealing with cranio-cerebral topography, and the delimitation of the abdominal cavity; in both of these Professor Berry gives some of the interesting results which he has obtained by his own investigations. Many of the illustrations are strikingly drawn, and are certain to impress on the student's mind the facts that they are intended to emphasise. The book will undoubtedly prove very useful to students desiring to revise and improve their knowledge of the relationships which the deeper structures present to the surface markings of the body.

Toxicology: A Manual for Students and Practitioners. By EDWARD WALLIS DWIGHT, M.D., Instructor in Legal Medicine, Harvard University. London: Hodder & Stoughton.

THE "Author's Preface" to this volume is so exquisitely clear, and so exquisitely short, and so exquisitely true, and is so perfect an introduction to his volume, and so approximately unique a model of what such forewords should be, instead of what they nearly always are, that we reproduce it for the benefit of all our readers. It includes two sentences

only. These are the contents thereof:—"This volume is intended as a brief compendium of the facts in connection with Toxicology, which should be a part of the knowledge of every practising physician. It is more especially for the use of students, and is, of course, not intended to cover the ground exhaustively." But it forms a beautifully clear introduction, of which the contents have been admirably sifted and selected, and placed before the reader in the best possible arrangement and in the very clearest light. We congratulate both Dr. Dwight and Messrs. Hodder & Stoughton on the present addition of one of the neatest and most important items to one of the most eligible of existing "student's series."

A Practical Guide to the Administration of the "Nauheim" Treatment of Chronic Diseases of the Heart in England. By LESLIE THORNE THORNE, M.D., B.S. Durham; M.R.C.S. Eng.; L.R.C.P. Lond.; Assistant Medical Examiner (Education) London County Council. Second Edition. London: Baillière, Tindall & Cox. 1906. 8vo. Pp. 75.

A CAPITAL account of the Nauheim Cure and of the Schott Exercises is given by Dr. Leslie Thorne Thorne in his "Practical Guide." The object of the book is to show how both methods of treatment of chronic heart disease may be carried out in England or—as the author might have expressed it better—at home.

A short introduction is followed by four chapters. Of these the subject-matters are—in sequence—the action and administration of the baths, the administration and description of the exercises, the selection of cases suitable for treatment, and examples of cases.

The Schott Exercises are clearly described, and a series of twenty-eight photographs illustrates the different movements in a way which would be impossible in mere words.

The sphygmographic tracings taken before and after the Nauheim baths and before and after the exercises testify to the relief which is afforded to an over-burdened heart by both methods of treatment in suitable cases. In

the chapter of examples of cases, also, there are several diagrams showing the outlines of cardiac dulness before and after treatment. Altogether, the little book is the best we know on the "Nauheim Cure."

An Atlas of Illustrations of Clinical Medicine, Surgery, and Pathology. Chiefly from original sources. Fasciculus XXIV., or XVI. of New Series. Drug Eruptions, &c. London: The New Sydenham Society. 1905. Folio.

THIS Fasciculus of the New Sydenham Society's Atlas includes three plates of eruptions from bromide of potassium. These are followed by four plates showing the appearances in lichen urticatus, the portraits and descriptive letterpress having been supplied by Dr. T. Colcott Fox, M.B. (Lond.), F.R.C.P., Physician for Diseases of the Skin to the Westminster Hospital, and Visiting Dermatologist to the Ringworm Schools of the Metropolitan Asylums Board. In some general remarks on the subject of the disease called by Bateman "lichen urticatus," Dr. Colcott Fox prefers to call it "strophulus," and states that it is one of the most frequent eruptions met with in young children in London hospital practice. The elementary lesion consists in a lively red, rounded, congested macule, the size of the little finger nail, centred by a darker red papular projection. This congestive macule is ephemeral, leaving the papule to a somewhat longer life. The eruption is almost always bilateral. It may be general or local—the lesions being few or many, either scattered irregularly or casually crowded into a group (*confertus*), but not coalescing into patches. The affection may appear soon after birth, and seems to be a frequent sequence of vaccination and of the acute specific fevers. The accompanying irritation is great, and the baby or child often disturbs the whole family night after night by its restlessness and crying. The eruption is worse at night and in warm weather. The centre of the elementary lesion may become vesicular, then closely simulating a chicken-pox eruption. Dr. Colcott Fox believes this vesicular phase to be the *Vari-*

cella-Prurigo described by Mr. Jonathan Hutchinson, and figured in one of the plates of the New Sydenham Society's Atlas of Skin Diseases.

The paragraph on ætiology is to the point and convincing. A closing paragraph on treatment is meagre and disappointing. Of what use is it to be told that "where a child lies in distress all night a sleeping draught is desirable"? Is the child to be dosed with "Mother Seigel's Soothing Syrup" or poisoned with opium? "Treatment," writes Dr. Fox, "might easily be expanded into a long chapter"—certainly, the author has not erred in this direction.

The last plate in the present Fasciculus shows Pemphigus vegetans in a man, a German by birth and by race a Jew, who in 1885, at the age of twenty-six, first began to be liable to sores at the corners of the mouth and inside the cheeks, and who died in 1895, aged thirty-six, exhausted by continued inflammation of the skin. A diagnosis of pemphigus vegetans was first made in Berlin in 1890. At all stages in the disease arsenic manifested a very definite power in restraining the formation of bullæ. The tendency to the production of papillary outgrowths preceded the development of bullæ, but some months before death the "vegetans" tendency entirely ceased. The report of the case is followed by general remarks on the pemphigus group of maladies.

Third Treatise on the Effects of Borax and Boric Acid on the Human System. Being a Critical Review of the Report of Dr. H. W. Wiley, U.S. By DR. OSCAR LIEBREICH. London: J. & A. Churchill. 1906.

CONSIDERABLE attention has been directed to the boron compounds within recent years on account of their extensive employment as food preservatives. Dr. Wiley's investigations were carried out by the authority of Congress and at the instigation of the Secretary of Agriculture, U.S.A. Dr. Liebreich finds great fault with Dr. Wiley's methods, and also with the deductions drawn from his experiments, which he considers to be inexact and inconclusive.

The final conclusion arrived at by Dr. Liebreich is that Dr. Wiley has failed to establish the contention that injurious effects have been produced by the administration to man of the boron preservatives.

A Manual of Pharmacology. By WALTER E. DIXON, M.D.
Lond.; D.P.H. Camb. Illustrated. London: E.
Arnold. 1906. Pp. 451.

IN a recent number of this Journal we reviewed Professor Marshall's work on *Materia Medica*, which, although excellent of its kind, was adapted to the needs of pharmaceutical rather than of medical students. The present work, on the other hand, aims at giving the student a simple account of the science of pharmacology, especially in so far as it will enable him to understand the practical application of medicinal agents in the treatment of disease.

Dr. Dixon is assistant to the Downing Professor of Medicine in the University of Cambridge, and is Examiner in Pharmacology in the Universities of Cambridge and Glasgow.

He is evidently a good chemist, and well equipped for his task, and he has succeeded in producing what is, in our opinion, the best and most practical book on pharmacology which has yet issued from the British Press. From America we have the excellent treatises of Cushing and Sollmann.

Dr. Dixon's work is not a dry text-book of *materia medica*, nor is it a treatise on therapeutics.

Pharmacology is an experimental science, and Dr. Dixon's method of teaching is certainly a sound one, for he endeavours to cultivate the reasoning faculties of the student, to accept for granted as little as possible, and to subject all statements to experiment.

Many excellent diagrams are interspersed in the text, and numerous "tracings," most of which were recorded in the class demonstrations. No precise classification is attempted, yet, as far as possible, the drugs are arranged in pharmacological groups.

After some interesting and general remarks the author plunges at once into the subject of alcohol, and then takes up the group of anæsthetics.

Throughout the book some acquaintance with organic chemistry seems to be pre-supposed, and, in truth, it is quite impossible to intelligently follow the teachings of modern pharmacology without a fair inkling of organic chemistry and a capacity to comprehend the meaning and significance of structural (constitutional) formulæ. The book is well up to date, and is written in an attractive style. Chapter XX. gives some account of the theory of "ions," but is scarcely adequate to explain this important subject, which now asserts itself so boldly both in physiology and pharmacology.

• On page 31 there is an instructive list of some of the most popular patent medicines, giving their ingredients as determined by analysis. A few sentences are devoted to incompatibility in prescribing, but so scantily as to be of little or no use.

The best part of the book is the concise and lucid account given of the physiological action of drugs, and we can thoroughly recommend the work as a trustworthy guide both to teachers and students.

Genito-Urinary and Venereal Diseases. By LOUIS E. SCHMIDT, M.Sc., M.D.; Assistant Professor of Genito-Urinary Diseases, Chicago Polyclinic; Attending Genito-Urinary Surgeon and Dermatologist, Alexian Brothers' Hospital, Chicago. London: Hodder & Stoughton. 1906.

THIS manual is one of the "Medical Epitome Series," published by Messrs. Hodder & Stoughton, 27 Paternoster Row, London—the "series" being edited by V. C. Pederson, A.M., M.D., &c., New York. It is intended "that the individual volumes of this series should authoritatively cover their respectful subjects in all essentials."

The book before us contains 249 pages, and is of a convenient size for carrying in a student's pocket. In this

limited space the author includes a description of the signs, symptoms, clinical and instrumental diagnosis, and treatment of all the diseases, anomalies, and injuries affecting the genito-urinary organs. He also includes some 700 questions for "Quizzing purposes." There are twenty-two engravings, all of which illustrate surgical instruments. These, we think, might have been excluded, as the instruments depicted are such as every student is familiar with, except, perhaps, Pezzoli's instrument for massage of the prostate.

The text is so condensed that in great part it is little more than a series of definitions. These, with the questions for "Quizzing," would enable a candidate to "cram" for an examination, but would not be sufficiently descriptive to qualify him for recognising a type of disease at the bedside. The chapter dealing with microscopical, urethroscopical, cystoscopical, and urinary examinations is excellent, and, if for this reason alone, we can recommend the book for the use of house surgeons, who, we are satisfied, will find it a real acquisition to their book-case.

Diseases of the female genito-urinary organs, especially those of a venereal nature, are practically ignored in this manual.

We trust that in future editions the author will have greater space in which to do justice to the immense amount of information he has packed into so small a compass in the present edition.

Anæsthesia in Dental Surgery. By THOMAS D. LUKE, M.B., F.R.C.S. Ed. Second Edition. London and New York: Rebman, Ltd. 1906. 8vo. Pp. xiv + 227.

A COMPARATIVELY short period has elapsed since the first edition of this book was reviewed in these columns, and the fact that a second edition has been called for so soon goes far to justify the favourable opinion of it which was then expressed. In the present edition much new matter has been added, especially in the sections dealing with ethyl-chloride and with local anæsthesia. With regard to ethyl-chloride we quite agree with the author in

his remark that "a proper estimate of its toxicity has as yet scarcely been formed by the dental profession at large" and we would even extend it to the medical profession in general. The rapidly-increasing number of fatalities, in apparently healthy people, from the drug, even when used by presumably skilled men, has awakened considerable distrust, and most anæsthetists will agree that "it must not for one moment be regarded in the same light as 'laughing-gas' as regards safety." The description given by the author of the methods of administration of the drug are admirable, and will be of real service to anyone about to use it in his practice. The treatment of the question of local anæsthesia in this edition is almost completely new, and very much better than it was in the previous edition. The methods and drugs are clearly and fully described, as are also the limitations and dangers of their use.

In the chapter on the history of anæsthesia we note the repetition of an error in the description of the introduction of ether. It is, no doubt, true that Morton discovered ether and on October the 16th, 1846, demonstrated publicly its use in surgery at the Massachusetts General Hospital. But Dr. Crawford Long had operated some four years previous to this on a patient purposely anæsthetised with ether.

We must heartily congratulate Dr. Luke on the new edition of his really useful text-book, which we can thoroughly recommend to all those interested in the subject of dental anæsthetics. T. P. C. K.

The Champagne Standard. By MRS. JOHN LANE. London: John Lane, the Bodley Head. New York: John Lane Company. 1906. 8vo. Pp. xx + 314.

THE extremely prepossessing volume has been beautifully printed on exquisite paper, in type of æsthetic outline and uncriticisable clearness; and introduced to the public in a most tastefully-prepared external garment, that presents the special decoration of a beautiful—and most appropriate—artistic design on the external face of its superior

plane, and which is also reproduced, in appropriately changed tints, on the title-page within. And the contents are worthy of their costume. Seventeen short essays follow the author's "My Preface." Each deals with an interesting and much-discussed subject, which is treated in a manner that displays the extremely rare combination of reliable good sense with artistic literary taste and discrimination. The title of the first of these has also been given to the volume as a whole. Then follow such items as "American Wives and English Housekeeping," "Kitchen Comedies," "The Extravagant Economy of Women," "A Plea for Women Architects," "The Electric Age," "The Plague of Music," &c., &c. The last bears the title of "Soft Soap." A fair idea of the application of the latter equivocal term may be gathered from a quotation: "When soft soap was invented it was constructed out of the best materials of insincerity, surface enthusiasm, a touch sometimes of covert satire (or it would spoil), and just enough truth to mix the ingredients and make them digest. This is administered in all grades of society with the greatest success, and of it can be said, in the pathetic words of an American advertisement of a preparation of medicine not usually popular with childhood, castor-oil, 'Even children cry for it.'" A discussion which appeals directly to medical criticism is found under the heading of "Gunpowder or Toothpowder." This essay opens with the question: "Why are the English, admittedly the apostles of the tub, so indifferent, as a rule, to the condition of their teeth?" And towards the conclusion we are told that: "Tooth-brushes make for health, health makes for intelligence, and it is the intelligent man the world wants and pays for; which proves the incalculable importance of tooth-brushes in the progress of the world. Possibly the atmosphere of a Republic is more conducive to good teeth; but, really, England should make a supreme effort to save her waning power from falling into the grasp of the great Republic, which it is inevitably bound to do if England does not go to the dentist." There is much sound truth in these trippingly fantastic sentences! We cordially recommend them—as well as Mrs. Lane's whole volume—to the attention of our readers

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR THORNLEY STOKER, M.D., F.R.C.S.I.

General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF MEDICINE.

President—SIR WILLIAM SMYLY, M.D., F.R.C.P.I.

Sectional Secretary—F. C. PURSER, M.D., F.R.C.P.I.

Friday, March 2, 1906.

JOHN MAGEE FINNY, M.D., in the Chair.

Cirrhosis of the Liver.

DR. DRURY, with MR. EDWARD TAYLOR, brought forward a case of the above, in which operation was performed for the relief of ascites. The patient developed acute ascites, apparently within a week, with great œdema of the legs and suppression of urine to three ounces. The abdomen was tapped, but no great increase of secretion of urine resulted, and it began rapidly to diminish as the ascites again collected. The Talma-Morrison operation was then done; the patient made a good recovery, and now is daily at work.

Acæmia Splenica Infantum.

DR. T. GILLMAN MOORHEAD read a paper on the above subject and exhibited the organs from a case of the disease. [His paper will be found at p. 341.]

DRS. LANGFORD SYMES, TRAVERS SMITH, and PEACOCKE discussed the case. The last-named speaker mentioned a similar case under his care which had got well.

Unresolved Pneumonia treated by Pneumococcus Vaccine.

DR. J. B. COLEMAN, C.M.G., read the notes of a case of un-

resolved pneumonia in which the inoculation of pneumococcus vaccine, according to Professor Wright's method, was followed by a satisfactory result.

Dr. Coleman remarked that his was only a single case, and that it would not be fair to deduct too much from it; but the facts pointed to the favourable result being due to the injection of pneumococcus vaccine administered by Professor Wright's method. In conclusion, he expressed his great indebtedness to Professor A. C. O'Sullivan for having made and supplied him with the pneumococcus vaccine used.

THE CHAIRMAN expressed confidence in Dr. Wright's inoculation treatment.

SIR JOHN MOORE deprecated the treatment of pneumonic fever by antipyretics. He believed that high fever, if not of too long duration, was usually followed by rapid resolution.

DRS. O'CARROLL, TRAVERS SMITH, MOORHEAD and STOKES also discussed the case, and Dr. COLEMAN replied.

SECTION OF PATHOLOGY.

President—JOSEPH F. O'CARROLL, M.D., F.R.C.P.I.

Sectional Secretary—PROFESSOR WHITE, R.C.S.I.

Friday, March 16, 1906.

THE PRESIDENT in the Chair.

An Uncommon Form of Renal Disease.

DR. PARSONS exhibited kidneys which had all the appearances of the congenital-cystic form, only a small portion of the kidney substance being left intact. The patient, a labourer, aged forty, was in his usual good health until the day before his death. Suddenly becoming ill he was admitted to hospital, where he died in twelve hours. Clinically he exhibited symptoms of gastro-intestinal irritation, with suppression of urine. The autopsy revealed nothing amiss except the kidneys shown.

DR. O'CARROLL said it would be interesting to know whether the condition was congenital or not.

PROFESSOR SCOTT considered the condition as being of the nature of hypertrophic cirrhosis, due to a pathological change, that must have begun within the last ten years at least.

DR. TRAVERS SMITH said that some brain trouble might possibly account for the sudden death of the patient.

DR. PARSONS said the brain was examined, and was found normal. He considered it to be more a case of congenital cystic kidneys than of chronic interstitial nephritis.

Aortic Aneurysm perforating Pulmonary Artery and causing Perforation of Pulmonary Valve.

PROFESSOR O'SULLIVAN said the patient from whom the specimen was taken was brought in a dying state to hospital. The *post mortem* showed an aneurysm of the aorta on the right side, half an inch above the attachments of the valves, and perforating the pericardium. It had also perforated the pulmonary artery above the valves, and the valves themselves showed evidence of perforation. This latter condition, he said, was caused by the blood-stream that had passed from the aorta into the pulmonary artery.

DR. O'CARROLL mentioned a case, almost identical, that had been shown him by Dr Earl, but he was not certain as to the involvement of the valves.

Epitheliomatous Penis.

MR. E. H. TAYLOR exhibited a penis removed for epithelioma.

Epithelioma involving part of the Duodenum where the Bile-duct opens into the Intestine.

MR. E. H. TAYLOR said—The man, aged forty, had several attacks of jaundice, which gradually disappeared after each attack. When he came to hospital his liver was somewhat enlarged, and his skin slightly jaundiced. On opening the abdomen the gall-bladder was distended, and a great number of gall-stones were found in the common bile duct. Found a hard mass in the duct where it opens into the duodenum, which he removed. On the 9th day the patient's temperature rose, and he developed pneumonia, from which he died. Dr. O'Sullivan made the *post mortem*, and found a cancerous mass at the mouth of the duct. There was no obstruction to the flow of bile, and the liver was enlarged and cirrhotic.

Cancer of the Ovary.

MR. E. H. TAYLOR said—This tumour was removed from a woman, aged fifty-five. On examination it seemed like circumscribed peritonitis, and could be felt just above the pelvis. The tumour was more easily palpated when the patient was under the anæsthetic. On opening the abdomen a quantity of bloody

fluid poured out. The patient will be able to leave hospital next week.

DR. O'CARROLL said the jaundice in the case of the epithelioma of the duodenum was due to the gall-stones, and not to the cancer.

PROFESSOR O'SULLIVAN said the duodenal epithelioma resembled a papilloma in many respects. As to the development of pneumonia it was interesting to note that the diplococcus of pneumonia was found in the bile duct before any trouble appeared in the lung. It was held that croupous pneumonia did not originate from the blood, but through the air passages. It was probable in this case, however, that the diplococci might have reached the lung by extension from the under surface of the liver through the diaphragm.

Urticaria Pigmentosa.

DR. WALLACE BEATTY exhibited a boy, aged nearly 4 years, the subject of urticaria pigmentosa, dating from a month after birth, and he showed microscopic sections of a nodule excised from inside the knee. He demonstrated the interesting fact that the granules of the mast-cells, which are stained red by polychrome methylene blue in alcohol—fixed and hardened preparations—are stained also by eosin if the skin is fixed in Zenker's fluid (*i.e.*, Müller's fluid saturated with corrosive sublimate plus 5 per cent. glacial acetic acid) before final hardening with alcohol. Three considerations present themselves:—(a) Has Zenker's fluid so altered the granules of the mast-cells as to render them acidophilic instead of basophilic, as they appear to be when alcohol alone is used for fixing and hardening? (b) Are the granules of the mast-cells really basophilic? If the red colour of these granules is due to the methylene azure of the polychrome methylene blue, it is to be noted that methylene azure is an oxidised methylene blue, and contains the SO_2 group—*i.e.*, a less basic body than the methylene blue from which it is derived. (c) Perhaps the true explanation of the red colour of the granules of the mast-cells, when the sections are treated with eosin, followed by Löffler's methylene blue, is that these granules are really stained by methylene azure. Nocht and Robin (*c.f.*, Mann's Physiological Histology) found that on bringing methylene blue and eosin together there is formed methylene azure along with other compounds. If so, the stain is practically the same as if polychrome methylene blue be used. However, the fixing agent is not without some influence, as the mast-cell-granules in sections made from the portion of the skin fixed in Zenker's fluid do not take

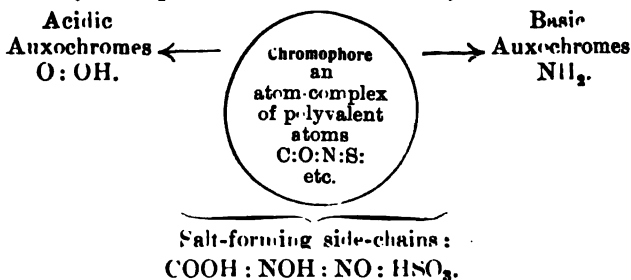
the characteristic red colour, but a bluish colour, with polychrome methylene blue.

DR. O'CARROLL said there were two fundamental theories regarding the origin of this disease—viz., that it is either (1) a structural or anatomical lesion or (2) a chemical one.

PROFESSOR SCOTT said on examining the blood he found the lymphocytes existed in almost equal amount with the polynuclear leucocytes. The granules were of a proteid nature, and would be acted upon by re-agents. They would be altered by such chemicals as corrosive sublimate.

DR. WALTER SMITH thought it not improbable that, in the near future, the closer study of stains and dyes might throw some light upon the important problem of the nature of proteid substances. He pointed out that an efficient stain usually included or was made up of three constituents:—(1) A nucleus, or chromophore, with a feeble acid or basic tendency. The chromophore usually belongs to the aromatic series, and includes polyvalent atoms—e.g., C : O : S : N. (2) Auxochromes, represented by NH_2 (basic group), or (OH), and oxygen (acidic radicals), tacked on the chromophore, and, correspondingly, modifying its properties. (3) Salt-forming groups—e.g., carboxyl, COOH : sulphonic group, HSO_3 , NOH : NO_2 .

This may be represented diagrammatically:—



The general theory of staining depends upon physico-chemical interactions between the stain and the tissue.

DR. O'BRIEN said that any side-light that could be thrown on the pathology and ætiology of the disease would be productive of good results as regarded the treatment and diagnosis.

DR. WALLACE BEATTY briefly replied. He said—Some thought urticaria pigmentosa might possibly be of congenital origin, like *nævi*. The child he exhibited was in the stationary phase of the disease ; and he had never seen a further advanced case. In his experience he had met with only two cases in the early stage.

THE FOUNDER OF PHRENOLOGY.

FRANZ JOSEPH GALL, *Physician ; Unique Pioneer in the Terra Incognita of the central Nervous System ; Discoverer of " Broca's space ; "* and (much misunderstood and misrepresented) "*Founder of [the 'science' of] Phrenology.*" By JOHN KNOTT, M.A., M.D., Ch.B., and D.P.H. (Univ. Dub.) ; M.R.C.P.I. ; M.R.I.A. ; &c.

THERE are but few names, indeed, to be found among those which have obtained special notice in the history of science—true or false—the motives and achievements of whose bearers have been so thoroughly misunderstood, or misrepresented, or both, as that of the " founder of phrenology." Hardly even of Machiavelli can it be said with so much truthful fidelity, that " his works were misrepresented by the learned, misconstrued by the ignorant, censured by the Church, abused with all the rancour of simulated [in his case, *scientific*] virtue . . ." Franz Joseph Gall was born at Tiefenbronn (border-line of Baden and Württemberg), March 9, 1758, and died at Montrouge (near Paris), August 22, 1828. In the course of this scripturally-timed pilgrimage of three-score years and ten, sloth or lethargy, physical or mental, found no admission. He studied medicine at Strasburg and at Vienna, and in 1785 started on his medical career in the latter city. Eleven years later, he commenced to give special courses of lectures there on the structure and functions of the brain ; the " localisation " of the latter having long been the subject of his most enthusiastic research and observation. In the course of six years, the fame of his unprecedented views had attracted the attention of the Austrian Government ; the result of which was that his public discourses on matters cerebral were prohibited, as being subversive of orthodox theological dogma. But the irrepressible lecturer would not be permanently silenced ; and, accordingly, after another interval of three years (1805), he started on a wide European lecturing tour, which embraced Germany, Holland, Sweden, and Switzerland. He was accompanied—pretty necessarily—by an associate-assistant, Spurzheim ; and at the end of a couple of years (1807), when his name and fame filled Europe, he settled in Paris to practise as a physician, which he did with the most brilliant success. The memoir of the conjoint researches and discoveries of master and assistant, which was presented to the French Institute in the

following year, elicited an unfavourable report from the leading scientific specialists of that accomplished and critical oligarchy, of whom Cuvier was one. The sentence was followed by the production of a series of works on the structure and functions of the brain and nervous system, which culminated in the colossal *Anatomie et Physiologie du Système Nerveux*. The accusations of *materialism* and *fatalism* which were diligently levelled against his system, called forth (1811) a volume entitled *Des Dispositions Innées de l'Âme et de l'Ésprit*. In 1813 the hitherto subordinate Spurzheim felt himself sufficiently accomplished—and, accordingly, independent—to take “French leave” of his master, and left for England, the most fructifying nursery of charlatans and cheats, with the well-founded hope of reaping a harvest for himself by an unprincipled—but highly lucrative—misapplication of his master’s researches and discoveries, and the fame thereto adherent. Gall vigorously protested against, and unsparingly denounced, the procedure and methods of his quondam associate; to whom, and to the Caledonian Combe, humanity is indebted for the shilling phrenological bust and the vagrant phrenological practitioner. The progressive devolutionary development which Gall’s laboriously cultivated science of cerebral localisation underwent at the hands of those worthies, and of those of the horde of blatant quacks and cheating charlatans who soon greedily adopted their methods—with revision of decorative illustrations and improvements—rapidly came to confer upon phrenology an odorous reputation, which absolutely excluded the patronage, or even passing recognition, of all “scientists” who felt seriously anxious for the preservation of the *respectability* of their reputation.

One of the pregnant signs of the times, however, in this revolutionary and democratic—if sometimes devolutionary and, perhaps, even retrograde—generation is the fact that it has liberally displayed instances of its scepticism of hearsay authority in matters of long-received opinions, and has presented conspicuous activity in the whitewashing of dusky reputations. Machiavelli, Lucrezia Borgia, Mary Queen of Scots, Henry VIII., Oliver Cromwell, Napoleon Buonaparte, and various others have had many of the strongest items of incriminating evidence advanced against them by contemporaries and immediate posterity, neutralised, or even completely reversed, and, in every instance, modified more or less favourably. And even the much-abused “founder of phrenology” and his

despised science have of recent years been brought into the Court of Scientific Appeal by champions who have displayed their readiness and willingness to defend against all comers the validity of the scientific claims of the original cartologist of cranial topography and attempted localisation of cerebral function. Most of their arguments have, I believe, been advanced before—some of them, perhaps, with a greater proportion of literary momentum, and even of scientific precision. These latter gifts tend, I fear, to become proportionally more rare among the ranks of the practitioners of the healing art as the broadcast diffusion of physical knowledge and mechanical methods renders the acquisition of a certain amount of so-called “*practical*” “*science*” so much more readily attainable by the proprietor of the average modicum of intellect. I would also indicate, in passing, another regrettable feature of the intellectual progress of the present generation: the *unacknowledged* neglect of the logical faculty and method in the scientific researches and discussions with which our eyes and ears are every day assailed. Some observant individual has remarked before now that *logic* is the one form of reasoning which men do *not* employ in everyday life. This statement is, I believe, uncontradictable. But if the syllogistic test had been periodically applied to the “scientific” methods, and “facts,” and “proofs,” which have continuously pervaded our mental atmosphere during the past half century, the world would surely have been saved from many considerable inundations of preposterous—and often mischievous—theories, whose practical applications have been so successfully floated on the intellectual (and thence on the mercantile) market. And earnest observers and thinkers would have escaped the depressing contemplation of the “scientific” bounce, and the Malvolio-*nic* self-appreciation, of so many contemporaries who have managed to secure a reception within the inner circle of recognised teachers and representatives of materialistic knowledge, as well as of the more aggravating conceit of the extra-circumferential zone of aspiring candidates and hangers-on, which forms the chromosphere of the central illuminating mass of the chosen representatives of scientific revelation.

A writer of the semi-inspired type has before now enunciated the concisely epigrammatic (as well as satisfactorily metrical) aphorism:

“The proper study of mankind is man.”

And, of all the departments of the tangled human economy, there is surely none which more worthily attracts man's concentrated scientific and philosophic attention than does the organ of mind and thought—of the powers and faculties which specially distinguish humanity from all other types of animated nature. The study of the brain is indeed a fascinating one; and in the present age, when every member of every civilised community is educated, and every educated person—male or female—rejoices in the possession of a brain, and in the consciousness that the best furniture for its decoration and the most unlimited supply of nutrition suitable for the promotion of its maximum growth and development lie within fairly easy reach, it may safely be affirmed of the total male population that every voter remains unsatisfied till he has furnished his own cerebral organ to his own special taste. And every woman, too—in every civilised state—glories in the conscious possession of a brain, and in the ability to display the powers and possibilities of its special function—the intellectual—especially if she happens to belong to the type known as “the *New*.” Accordingly, it is a great—and a worthy—source of self-congratulation to the self-satisfied scientist of our twentieth century to be able complacently to feel that his knowledge of brain and mind has, by the researches of recent years, been brought to rest on a reliably solid foundation of physical facts.

The seat of the organ of thought, the $\psi\upsilon\chi\eta$ (soul, mind), the possession of which alone distinctively elevates man above the level of the rest of animated nature, has always—and very naturally—possessed a special interest for the philosopher and the scientist. The immortal, and presiding, unit of the triple soul of the “divine” old Greek was located by Plato in the brain. The association led him to make the cranial globe a microcosm, a quintessential “picture in little” of the entire spherical universe. And the enthusiastic modern Platonist, Dr. Henry More, the contemporary and—for a time at least—devoted admirer of Descartes, enumerates no less than ten special localities (mostly, as might be anticipated, of the *azygos* type of arrangement, in which various seekers after truth had indicated the seat of anchorage of the soul. Notwithstanding his own temporary admiration for the personality and philosophy of his great contemporary, More came, after careful examination, to reject with utter scorn Descartes's attempted localisation of the immortal part of man in the *conarion*.

Although it may prove true that, in the language of the gifted author of the *Breitmann Ballads*, the "mind is the result of food" in the last resort, there are, nevertheless, so many interesting and intricate items of physical fact involved in the countless stages which have to be traversed, from the original sowing of the wheat and the impregnation of the bovine ovum to the assimilation of the bread and beef which are responsible for the genesis of the materials of a *Hamlet* or a *Faust*, or the scientific revelations of a Newton or a Pasteur, that the most self-appreciating democrat of the twentieth century can find as much to admire in the inner workings of the organ of human thought as ever did the most subtle Socratic dialectician, the most versatile academic philosopher, the most logical peripatetic metaphysician, or the most dreamy mediæval mystic. And true it is that the first exposure of the solid bed-rock of physical science, on which our present knowledge and teaching regarding the brain and its functions now rest, and the deposition thereon of the earliest reliable contributions of anatomical and physiological facts which form the original foundation of the colossal superstructure of which medical science is now so justly proud, were the achievements of the enthusiastic pioneer of cerebral localisation—Franz Joseph Gall.

The observations of Gall, as originally made and noted down by himself, are of a quality and tone very different indeed from those of his *mis*-representatives of succeeding generations. The enthusiastic devotion to the pursuit of localisation which, perhaps, sometimes led him to overstep the limits of cool scientific calculation, had the unquestionable effect of securing him the unwearying energy which is essential to the accumulation of an unprecedented wealth of original material. One of his relatively early localisations was that of *Veneration*, which presents a history somewhat more instructive than religiously edifying. For many years he went regularly to Church every Sunday, and occupied a seat in the front row of the gallery; not, however, so much to worship and to pray as to study the uncovered heads of those beneath. Prolonged experience demonstrated to his satisfaction that those worshippers who were most punctual, and most obviously ardent in their devotions, presented a decidedly pronounced elevation of the cranial vault in the bregmatic region. Hence *Veneration*. (To the superficial scoffer at Gall's system of localisation I would commend a passing inspection of the respective busts of Sir Walter Scott and Sir Thomas Watson,

both of whom were, undeniably, men of exceptionally high ideals and aims.) The record of the fixation of *Destructiveness* would be more decidedly amusing had it been somewhat less gruesome. The principal items of a large series taken in evidence were three in number. This significant tripod included—(1) A young man who had already entered upon a promising career in business, but could obtain no mental rest till he became a butcher; for the keenest enjoyment of his existence lay in the spilling of blood and the destruction of life! (2) A metropolitan citizen of good position and prospects, who was possessed by so insatiable an appetite for infliction of pain and destruction of life that, when the post of public executioner became vacant he at once threw up all his other pursuits and became a candidate—the successful one, too! (3) An ingenuous youth, whose career had been under observation from childhood to adult life, had evermore enjoyed a reputation for cruelty of a type which was positively demoniacal. He always dismembered insects when the opportunity offered; maimed and tortured birds and quadrupeds, whenever and wherever it could be done with impunity; and never missed a chance of inflicting pain and physical injury on a schoolmate or a playfellow. When the time arrived for this hopeful youth to choose a career in life, nothing would satisfy him but to become a surgeon! All three enthusiasts in the pursuit of “*Schadenfreude*”—the butcher, the hangman, and the surgeon—had been decorated by Nature’s hand with cranial protuberances in the locality situated above and behind the external auditory meatus; such facts led Gall to localise the quality of *Destructiveness* in the corresponding region of the underlying brain. The bumps of the surgeon are said to have been the most prominent of the series; the reader should, however, remember that he lived and practised in a præ-anæsthetic generation.

The history of the foundation of so important a feature of human character upon such evidential data will doubtlessly titillate the organs of risibility of the ignorant and the sarcastic, and prejudice unfavourably their estimate of Gall’s logic and mental physiology. But, before ventilating their opinions on a theme of dimensions so massive, they should take the trouble of examining Gall’s great work. I have not hitherto come to close quarters with anyone who has read his four folio volumes through and examined the atlas of beautiful illustrations. I have done so myself, and feel disposed to suspect that many of the *original* discoverers of matters cerebral will not feel specially grateful to

the writers who have recently endeavoured to call attention to them in the duplex phases of praise and detraction. It may have the effect of sending the curious to examine for themselves. And I confidently promise them that when they do, they will find more startling—and immeasurably less equivocal—revelations regarding reality of authorship than any which have hitherto been brought to the surface in the course of the Bacon-Shakespeare controversy ! It is a peculiarly singular, and, to the earnest seeker after truth and knowledge, a peculiarly painful circumstance, that few, if any, of Gall's detractors betray the slightest familiarity with the undeniable fact that he actually did more to advance the knowledge of the structure of the brain than did all the other anatomists of his generation—to which we may gratuitously add, of all preceding generations. Such a statement may, at first sight, appear to conform to the trans-Atlantic conception of a "tall order." But is not the less true. When he began his researches, the usually irregular and unsystematic methods of anatomical and physiological investigation, carried out in the absence, practically complete, of microscopic procedure, had actually left the knowledge of the central nervous system in great measure limited by the swaddling clothes with which its infant form had been invested by the immortal Stagirite, more than a couple of thousand years before. Since the publication of his colossal work, its vast and varied contents have proved a veritable quarry—or, more appropriately, *mine*—from which the *original* observations and *discoveries* of successive generations of anatomists and physiologists have been skilfully and successfully exhumed. As a typically enthusiastic genius, his restless pursuit of knowledge in his chosen domain never seemed to tire. As is probably always the case with such investigators, his ways and methods were sometimes suggestive of the unmanageable, if not unreasonable, faddist; and the record of their progress is occasionally amusing as well as instructive.

Having earnestly requested my readers to bear in mind the facts that Gall was only in a very restricted sense the sculptor of the "phrenological bust" of our latter-day shop windows; that he indignantly repudiated and denounced the mercantile adaptation of his researches and views by his run-away assistant Spurzheim, and that he, accordingly, should not have his name so unquestionably associated by the semi-scientist and the "well-read" and critical "man in the street" with the "science" of phrenology—"as she is taught" by his self-elected successors

and *mis*-representatives; I will proceed to invite their attention to two specimens of the multitudinous results arrived at by this indefatigable pioneer of the anatomy and physiology of the brain. One of these is concerned with the localisation of a cortical centre. Motion—perhaps as a simpler function of animal life than sensation—appears to have its presiding areas more approximately outlined in cerebral space than are those of sensation, common or special; and incomparably more so than those of the various intellectual powers. But it should be noted that even the motor areas are *not* arranged in water-tight or non-conducting departments. Thirty years ago, Professor Brown-Séquard, then the most prominent of physiological pathologists, having noticed that a special experimental lesion of the cortical area in the rabbit always produced a motor paralysis on the *same* side, published an analysis of 200 cases of pathological lesions of the human brain in which the corresponding anomaly had been established—which had been observed in his own clinical experience, and in that of various other eminently reliable specialists. Whatever assumptions may be made on the resounding basis of “according to the modern doctrine of cerebral localisation,” the naked fact is that the presiding cortical areas of the brain have *not* the borders of their realms of jurisdiction defined with any approaching geometrical accuracy of limitation. And the present writer, for one, finds it difficult to realise how any intelligent observer, who *knows* the minute structure of the brain, can for a moment conceive that the exercise of any of its central functions could be rigidly confined to an absolutely limitable area. The possibilities of “shunting” and “short-circuiting,” with associated development of *vicarious* action, are surely suggested by the arrangement of every structural unit of the cerebral cortex. That such re-arrangements do occur is well known to every competent clinical observer. I will just indicate a single illustrative specimen of the fallibility of the accepted “scientific creed” of the present period. Some fifteen years ago (February 20, 1891) Professor E. H. Bennett, of the University of Dublin, exhibited to the Pathological Section of the Royal Academy of Medicine the brain of a patient whose death had been caused by the growth of a large tumour, which involved a considerable area of the cerebral cortex. His short—and characteristically pithy—comment included these clauses: “Those familiar with the admitted sites of the centres of volition governing the left upper limb will see that these and those of

many other parts of the left side of the body are destroyed ; but never during life was there any paralysis of the limbs. How are such facts to be reconciled with our present views of cerebral localisation ?" In the course of the ensuing discussion, Professor McWeeney made the only reasonable suggestion which could possibly be advanced—that of "vicarious action." In the presence of such facts, and when reminded that the strength of every chain of scientific reasoning is that of its weakest link, the orthodox localisers of our generation can, I venture to suggest, afford to display a little more modesty than they usually seem disposed to assume. As the merest matter of fact, there is at the present moment but a single cortical centre known, the specialisation of whose function is defined with anything even approaching the sanctity of exclusive consecration. That is the *speech-centre* ! And the discovery of that centre is solely due to the untiring zeal and penetrating clinical discrimination of Franz Joseph Gall ! A specially illustrative item of the utter irony of scientific reputation is furnished by the fact that this same cortical area as generally known to anatomical posterity as "*Broca's space*." Broca had been one of the noisiest opponents of the accuracy of Gall's published view till he saw a *single* autopsy which corroborated its pretensions. As a green convert he became correspondingly explosive in his recognition of the localised function ; and spluttered so aggressively in the opposite direction to that in which he had previously been travelling, that he made his contemporaries forget that the discovery was Gall's ; and his own name became attached to the "*space*" like an adhesive label.

Every anatomical student has (or used to have) to face the horrors of endeavouring to master the course and ramifications of the fifth cranial nerve—the *pons asinorum* of the medico-chirurgical curriculum. And every human being—lay and medical—is in turn made to feel the inconvenience of its functional activity at some stage, after a short period of terrestrial existence ; for it is the structure which telegraphs to the brain all sensations connected with (what may be roughly described as) the front half of the head—face, ears, teeth, and corresponding areas of scalp and chin. All the famous students of human anatomy, before Vesalius and after Hunter, had seen the roots of origin of this terrible structure emerge from the lateral margin of the *pons Varolii* ; below the surface of which they failed to trace them, if they ever made a good effort in the way of trying.

The devoted industry and energy of Franz Joseph Gall enabled him, after calling in the aid of the collateral illumination derivable from his researches in comparative anatomy, to trace, without the help of the microscope, the roots of this, the most complex of all the structures of the human frame, to the lower part of the medulla oblongata—where the twentieth century anatomist, furnished with the most up-to-date staining re-agents and the most magnifying microscopes, is obliged to leave them still growing! And, as a mere (uncontradictable) fact in the history of scientific progress, these two discoveries of Gall have formed the generating foci around which the entire expanding shell of our knowledge of the central nervous system—with its inevitable parasitic and saprophytic deposits, and excrescences of pretentious nonsense and of shameless charlatanism—has since been developed. And these are but two specimens, even if the largest in size and importance, of the hundreds of discoveries made by Gall; which have, since the date of his published results, created the name and fame of so many *original* investigators in the domain of neurology!

After all, as human nature still, unhappily, remains in an unregenerate state, there is not very much reason for surprise in the existence of the fact that the great pioneers of neural and mental science have united in a conspiracy of scornful silence, alternating with derisive detraction, regarding the merits of the work of Gall, the misunderstood “founder of phrenology.” I trust that the claims of the value of his system of cerebral localisation may, in the near future, be re-examined with the added illumination of the more penetrating light and broader expanse of view now available, than either his successors and misrepresentatives, or his plagiarists and detractors, have hitherto brought to bear upon its undeniably important—as well as intensely interesting—problems of cortical function. I, for one, implicitly believe that “there is something in” Gall’s localisation; as I believe that there is, and has been, in every body of doctrine which has at any period of history found wide-spread acceptance with humanity. I know no observant person whose opinion is not greatly influenced by “first impressions.” And such impressions are but those made by the physiognomy of the individual subjected to inspection. Here I use the term *physiognomy* in its broadest sense; which includes *phrenology*, as I conceive the latter. Not only do the cranial superficies, the various areas of the face, and its individual features—with their

infinite variety of permutations and combinations displayed in the genesis and conveyance of "expression"—afford material to the observer for the formation of opinion regarding the mentality and morality of the owner, but the outlines of every portion of the whole human body, with its attached limbs, even to the tips of the fingers and toes (inclusive of their unguis decorations), and—by no means to be neglected—the individual complexion, with the appearance, character, and *natural* arrangement of the hirsute appendages. With the characteristics of form and feature I would include every type of movement which has not been modified or specialised by "education." The slouching gait of the incurable mischief-maker may safely be regarded as symptomatic; so will I also guarantee to be the significance of the sandy scalp hairs, brightening as they descend till they attain an approximately foxy tint in those of the beard—a form of decorative display which I beg to assure the reader will never be found to adorn the person of any specimen of *homo sapiens* who is not a natural Judas Iscariot. The "plastic" hand is a feature significant enough to influence the opinion of every rational observer—except perhaps the histologist or bacteriologist whose expanse of "scientific" vision is strictly limited by the margin of the field of his microscope. The inefficient grasp of the waxy, tapering fingers is fairly sure to prove to be mental as well as physical. And the ownership of demonstratively angular interphalangeal articulations may pretty safely be regarded as indicative of correspondingly projecting features of the inner temperament—or temper. The beetling brow, the deep-set eye, the aquiline nose, the malar prominence, and the square chin, are features whose respective significance has been recognised for untold centuries; and will, I venture to opine, hardly ever become permanently discredited. It was not without some well-founded data that Giovanni Baptista Porta, more than three centuries ago, illustrated his famous folio, *De Humana Physiognomia*, with the animal faces (trunks and limbs) placed side by side with the human ones of which he regarded them as the "evolved" types. The reader there finds, in immediate juxtaposition, the busts of Socrates and of the stag (*Cervus . . . ingeniosus inter animalia*), in illustration of the significance of large eyes; and the finely-engraved title-page presents the significant *facies* of the fox, placed opposite the well-known features of Cæsar Borgia. The long fore-arms which brought the hands (in the erect position of the body) down to the level

of the knees, were regarded by Rhazes—the celebrated Arabian physician to whom the world is indebted for the original recognition and published description of *small-pox* as a distinct disease—as indicative of the *fortitudo et felicitas* of the owner. They had been looked upon by Aristotle as connotative of *audacia cum probitate, et largitate*. The flat sole, of which the entire surface touches the ground in walking, is illustrated in Porta's volume by that of the fox. Is this all nonsense? It is pretty evident, anyway, that no such items will be pigeon-holed as "scientific" matter during the leadership of the scientists of the present day. Nevertheless, if "science" means knowledge, as some of us have been in the habit of believing, and if the proper study of mankind is man—which is the practical teaching of every-day existence, as well as the time-honoured preaching of the poet and the philosopher—I would commend to both the cock-sure scientist of the inner circle, and the intelligent denizen of our public thoroughfares, the consideration of the bearings of the aphorism of which the wisdom has never, I believe, been successfully disputed: "Beware of the man whom dogs and children avoid."

The fact that Gall's boyish observation, that those of his school-fellows who were conspicuously best at their lessons had all of them large and prominent eyes, actually formed the starting-point, as it afterwards laid the foundation-stone, of his system of localisation of intellectual functions, has recently been noticed by an eminent critic in a tone of the loftiest conceivable contempt. When the school-boy became an anatomist he explained his former observations by the location of *memory* in the supra-orbital region of the cerebral cortex. "It is doubtful whether any young man ever made a worse start." So says his critic! And the latter, being an eminent surgeon, and (presumably) a skilled anatomist, proceeds to observe: "Regardless of all other possible causes, as the orbital fat, the size of the eyeballs, and the width of space between the eyelids, he persuaded himself that the prominence of the eyes was due to the quantity of brain above the orbits; and forthwith he assigned this region of the brain to memory for its kingdom." The perusal of such criticism has elicited some pained surprise; but I must, in the interest of justice and scientific truth, point out to my readers—while bearing in mind that the discussion involves *healthy* conditions only—that the "amount of orbital fat" *never* induces increases prominence of the eyeballs, for conservative nature never permits

an accumulation (where would be the eyeballs of our prosperous aldermen if she did ?) ; that the "size of the eyeballs" is one of the few approximations to mathematical constancy in the macroscopic anatomy of the human body, and *never* influences their prominence ; and that the "width of space between the eyelids" *never* modifies, even to the extent of a hair's-breadth, the antero-posterior projection—that is to say, the prominence—of the eyeballs. This schoolboy observation of Gall appeals with peculiar force to the writer of this article ; from the fact that in the West of Ireland National School in which he received the rudiments of his own education, there was in his time one pupil who rapidly passed from class to class, and as rapidly rose from the foot to the head of the class to which he was in turn promoted. He left all his competitors nowhere ; while the more bilious of them vented their vindictive spleen by the application of the only opprobrious epithets which directly suggested themselves—"bullet-eyes" and "saucer-eyes." Since that (now, unhappily, remote) date I have noted this feature in students—inclusive of medical, of whom I have had opportunities of studying very many, indeed—and, at the present moment, my experience is wholly corroborative of the boyish observation of Gall. And I would suggest to the future detractors of the Founder of Phrenology that, before ventilating their private opinions on the value of his views in this connection, they should obtain those of all available schoolmasters of large experience.

I have already alluded to his localisation of *veneration* and of *destructiveness*, and have mentioned in association with the former two of the most brilliant contributors to the literature of romance and of medicine, respectively. I will now add—as a suggestion for the future criticism of intelligent observers—that I believe that the owner of a well-arched bregmatic elevation will be more than likely to be found to be an aspirant to high ideals and an eager pursuer of the same—so far as the unspiritual Diety, Circumstance, will permit him to be. On the other hand, I will unhesitatingly risk the opinion that the owner of a cranium nearly as wide behind the ears as long from before backwards, and closed above by an approximately flat roof, will be found on testing to be a born scoundrel of the worst—the coolly calculating—type ; the human specimen who, in Oriental life, would make a successful Thug (devoted to his calling) ; and, in the communities of Western Civilisation, develops by "natural selection" into an eminently respectable metropolitan attorney.

If my readers have had their interest arrested during the perusal of the preceding paragraphs of this communication, they will now be less startled by a statement of fact which appears to be anything rather than familiar to a very large proportion of the members of our profession; that the researches and discoveries of Franz Joseph Gall meant as much for our knowledge of the central nervous system as did those of Isaac Newton for our knowledge of the solar system—and even a great deal more. All the most important fundamental facts connected with the heavenly bodies had been thoroughly well known to the votaries of astronomy before Newton succeeded in reducing them to an apparently satisfactory system by his application of the theory of gravitation—a theory which, as the initiated well know, may some day be shown to be as purely hypothetical as Gall's system of cerebral localisation—or even far more so.

To the present writer, the fate of Franz Joseph Gall in his scientific pilgrimage has long seemed peculiarly reminiscent of that of Lemuel Gulliver in his Lilliputian sojourn. And the articles of scientific impeachment, in the case of the former, do bear such a distressful family likeness of feature and outline to the political ones drawn up by the courtiers and lawyers of the mighty Island Empire for the purpose of securing the destruction of the latter! And the key which will unlock the mystery of each is, I venture to affirm, to be found in the bitterly cynical aphorism—too obviously inspired by his own personal experience—of the author of the immortal *Travels*: “Whenever a true genius appears in the world you may always know him by this sign, that all the dunces are arrayed in confederacy against him.” Let the self-satisfied—and sometimes feather-headed scientist of the twentieth century soothe his moments of leisure by an occasional glance through the wrong end of his telescope at the record of the life-work of the “Founder of Phrenology.” But, in the name of truth and justice, let the consciousness of his assured pride of place not prevent him from giving due credit to Franz Joesph Gall; who laid the foundations of our present knowledge of the nervous system, with immeasurably less proportional assistance from the works of his predecessors than did Newton in the case of astronomy, or Lavoisier in that of chemistry, or Faraday in that of electricity—or, indeed, any other discoverer or inventor known to the annals of the manifold departments of natural and physical science.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

For four weeks ending Saturday, March 24, 1906.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending March 24, 1906, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 23.8 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,093,959. The deaths registered in each of the four weeks ended Saturday, March 24, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality.

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	Mar. 8	Mar. 10	Mar. 17	Mar. 24			Mar. 8	Mar. 10	Mar. 17	Mar. 24	
22 Town Districts	24.1	22.8	22.6	23.8	23.8	Lisburn -	9.1	18.2	13.6	27.3	17.1
Armagh -	13.7	20.6	20.6	13.7	17.2	Londonderry	16.1	23.6	18.6	9.9	17.1
Ballymena	19.2	14.4	19.2	28.7	20.4	Lurgan -	44.3	26.6	4.4	26.6	25.5
Belfast -	24.1	22.5	27.8	22.1	24.1	Newry -	21.0	4.2	12.6	25.2	15.8
Clonmel -	25.6	20.5	25.6	25.6	24.3	Newtown- ards	40.1	40.1	40.1	45.8	41.5
Cork -	23.3	24.0	16.4	26.0	22.4	Portadown -	15.5	20.7	5.2	10.3	12.9
Drogheda -	36.8	32.7	20.4	24.5	28.6	Queenstown	33.0	19.8	6.6	46.1	26.4
Dublin - (Reg. Area)	24.8	24.6	23.1	25.6	24.5	Sligo -	14.4	9.6	43.2	19.2	21.6
Dundalk -	31.9	16.0	12.0	19.9	20.0	Tralee -	10.6	15.9	-	-	6.6
Galway -	3.9	23.3	11.7	38.8	19.4	Waterford -	35.1	19.5	15.6	31.2	25.3
Kilkenny -	14.7	14.7	19.7	9.8	14.7	Wexford -	23.3	23.3	23.3	18.7	22.2
Limerick -	27.3	19.1	15.0	27.3	22.2						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, March 24, 1906, were equal to an annual rate of 1.1 per 1,000—the rates varying from 0.0 in fourteen of the districts to 17.2 in Newtownards, the 8 deaths from all causes in that district including one from measles, one from whooping-cough, and one from diarrhoea. Among the 152 deaths from all causes in Belfast are 5 from whooping-cough, 2 from diphtheria, 3 from enteric fever, and 2 from diarrhoeal diseases.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, March 24, 1906, amounted to 211—107 boys and 104 girls; and the deaths to 193—90 males and 103 females.

DEATHS.

The deaths registered during the week ended Saturday, March 24, represent an annual rate of mortality of 26.6 in every 1,000 of the population. Omitting the deaths (numbering 7) of persons admitted into public institutions from localities outside the area, the rate was 25.6 per 1,000. During the twelve weeks ending with Saturday, March 24, the death-rate averaged 23.6, and was 6.3 below the mean rate for the corresponding portions of the ten years 1896–1905.

The registered deaths (193) included one death from diphtheria, 5 deaths from diarrhoeal diseases, and one death from influenza. In each of the 3 preceding weeks the deaths from diphtheria were 0, 2, and 2, and the deaths from diarrhoeal diseases were 1, 3, and 3.

There were 6 deaths from broncho-pneumonia, and 7 deaths from pneumonia (not defined).

The deaths from all forms of tuberculous disease were 43 in number, and included 14 deaths from tubercular phthisis, 18 deaths from *phthisis*, 5 deaths from tubercular meningitis, 2

deaths from tubercular peritonitis, and 4 deaths from other forms of the disease. In each of the 3 weeks preceding, deaths from all forms of tuberculous disease were 50, 39, and 35.

Four deaths were attributed to carcinoma, 2 deaths to sarcoma, and 5 deaths to *cancer* (undefined).

The deaths of 2 infants, prematurely born, were registered.

Of 18 deaths from diseases of the brain and nervous system, 4 were of infants under one year, and 2 were of children between the ages of one year and 5 years, from *convulsions*.

Diseases of the heart and blood vessels were accountable for 31 deaths. There were also 31 deaths from bronchitis. Of 4 deaths from accidental circumstances one was due to vehicles and horses, one to burns, one to suffocation in bed, and one to accidental poisoning.

In 6 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 2 children under one year old and the death of one person aged 64 years.

Forty-three of the persons whose deaths were registered during the week under discussion were under 5 years of age (31 being infants under one year, of whom 10 were under one month old) and 66 were aged 60 years and upwards, including 32 persons aged 70 and upwards, of whom 10 were octogenarians, and one (a female) was stated to have been aged 90 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious disease notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended March 24, 1906, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Group	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping-cough	Cerebro-spinal Fever	Total
City of Dublin	Mar. 3	-	•	•	8	-	-	3	-	3	7	10	2	•	•	•	33
	Mar. 10	-	•	•	8	-	-	3	-	6	2	11	1	•	•	•	31
	Mar. 17	-	•	•	•	2	-	4	-	3	2	16	-	•	•	•	29
	Mar. 24	-	•	•	5	-	-	3	-	-	1	5	-	•	•	•	14
Rathmines and Rathgar Urban District	Mar. 3	-	•	•	1	-	-	-	-	-	2	-	-	•	•	•	3
	Mar. 10	-	•	•	-	-	-	1	-	-	1	-	-	•	•	•	2
	Mar. 17	-	•	•	3	-	-	-	-	-	-	1	-	•	•	•	4
	Mar. 24	-	•	•	1	-	-	-	-	-	-	-	-	•	•	•	1
Pembroke Urban District	Mar. 3	-	-	-	1	-	-	1	-	-	1	-	-	•	2	-	5
	Mar. 10	-	-	-	2	-	-	-	-	2	2	-	-	•	3	-	9
	Mar. 17	-	-	-	-	-	-	-	-	-	-	-	-	•	1	-	1
	Mar. 24	-	-	-	-	-	-	-	-	-	1	-	-	•	5	-	6
Blackrock Urban District	Mar. 3	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Mar. 10	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Mar. 17	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Mar. 24	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
Kingstown Urban District	Mar. 3	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Mar. 10	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Mar. 17	-	•	•	-	-	-	1	-	-	-	-	-	•	•	•	1
	Mar. 24	-	•	•	1	-	-	1	-	-	-	-	-	•	•	•	2
City of Belfast	Mar. 3	-	•	•	27	-	-	4	-	12	21	10	1	•	•	•	75
	Mar. 10	-	•	•	29	-	-	4	-	10	17	8	1	•	•	•	69
	Mar. 17	-	•	•	27	1	-	2	1	5	10	6	-	•	•	•	52
	Mar. 24	-	•	•	39	-	-	3	2	11	18	9	-	•	•	•	82

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended March 24, 1906, 6 cases of measles were admitted to hospital, 3 were discharged, and 14 cases remained under treatment at the close of the week.

Seven cases of scarlet fever were admitted to hospital, 4 were discharged, and 52 cases remained under treatment at the close of the week. This number is exclusive of 11 convalescents who remained under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

Two cases of typhus were discharged from hospital and 2 cases remained under treatment at the close.

Eight cases of diphtheria were admitted to hospital, 14 were discharged, and 23 patients remained under treatment at the close of the week.

Three cases of enteric fever were admitted to hospital, 6 were discharged, and 21 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 7 cases of pneumonia were admitted to hospital, 14 were discharged, and 18 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended March 24, 1906, in 76 large English towns, including London (in which the rate was 15.8), was equal to an average annual death-rate of 15.8 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 18.0 per 1,000, the rate for Glasgow being 18.3, and for Edinburgh 17.0.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General for Ireland has been favoured by Sir Henry D. Littlejohn, M.D., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended March 24. From this Return it appears that of a total of 40 cases notified, 11 were diphtheria, 21 scarlet fever, and 8 erysipelas. Among the 298 cases of infectious disease in hospital at the close of the week were 145 cases of scarlet fever, 58 of diphtheria, 13 of erysipelas, 59 of measles, 12 of typhoid fever, and 8 of whooping-cough.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of March, 1906.

Mean Height of Barometer	-	-	30.023 inches.
Maximal Height of Barometer (19th, at 9 p.m.)	-	-	30.485 „
Minimal Height of Barometer (11th, at noon)	-	-	28.924 „
Mean Dry-bulb Temperature	-	-	43.3°.
Mean Wet-bulb Temperature	-	-	40.7°.
Mean Dew-point Temperature	-	-	37.6°.
Mean Elastic Force (Tension) of Aqueous Vapour	-	-	.229 inch.
Mean Humidity	-	-	80.8 per cent.
Highest Temperature in Shade (on 16th)	-	-	59.9°.
Lowest Temperature in Shade (on 3rd)	-	-	31.9°.
Lowest Temperature on Grass (Radiation) (on 3rd and 30th)	-	-	27.8°.
Mean Amount of Cloud	-	-	63.8 per cent.
Rainfall (on 17 days)	-	-	1.520 inches.
Greatest Daily Rainfall (on 10th)	-	-	.478 inch.
General Directions of Wind	-	-	W.S.W., N.E.

Remarks.

"March many weathers"—the old proverb was true of 1906. The month opened with a dull, damp, mild day—more like late October than March. During the earlier part of the month the atmosphere was in a disturbed state over North-western Europe, while the barometer was high and relatively steady in the Mediterranean Basin. At 8 a.m. of the 8th pressure ranged from 28.43 inches at Bodö in the North of Norway to 30.44 inches at Lyons. In the period from the 10th to the 13th a very energetic depression crossed the North of Ireland, the South of Scotland, the North Sea, and the South of Scandinavia to the Gulf of Bothnia. Its S.W. winds piled up the water of the English Channel in the Straits of Dover, and its N. winds in like manner acted on the North Sea, with the result that much damage was done to the English coast-line by high tides and waves. So sharp a fall of temperature attended the change of wind that on the night of the 13th the thermometer went down to 17° at Wick, 18° at North Shields, and 19° at Nairn, and in central Scotland to 11° at Lairg and 8° at Fort Augustus. This arctic spell was followed by a sudden increase of temperature on the 15th, amounting to 20° at some stations. On the 17th the thermometer rose to 64°, 65° and 66° at various inland English stations. From the 18th to the end of the month a cold period prevailed, strong and squally N. and N.E. winds bringing with them frequent showers of hail, graupel (soft hail), sleet and snow.

The duration of bright sunshine was estimated at 132.5 hours, compared with 159 hours in 1905, 101 hours in 1904, 110.75 hours in 1903, 94 hours in 1902, 132.5 hours in 1901, and only 84 hours in 1900. The daily average of bright sunshine was 4.3 hours, compared with 5.1 hours in 1905, 3.26 hours in 1904, 3.57 hours in 1903, 3 hours in 1902, 4.27 hours in 1901, and only 2.7 hours in 1900.

In Dublin the arithmetical mean temperature (44.4°) was 0.8° above the average (43.6°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 43.3°. In the forty-one years ending with 1905, March was coldest in 1867 and 1883 (M.T. = 39.0°), and warmest in 1903 (M.T. = 48.1°). In 1905 the M.T. was 45.2°.

The mean height of the barometer was 30.023 inches, or 0.107 inch above the corrected average value for March—namely, 29.916 inches. The mercury rose to 30.485 inches at 9 p.m. of the 19th and fell to 28.924 inches about noon of the 11th. The observed range of atmospheric pressure was, therefore, 1.561 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 43.3°. Using the formula, *Mean Temp.* = *Min.* + (*Max.* - *Min.* × .485), the M.T. becomes 44.2°. The arithmetical mean of the maximal and minimal readings was 44.4°, compared with a thirty years' (1871-1900) average of 43.6°. On the 16th the thermometer in the screen rose to 59.9°—wind, W.S.W.; on the 3rd the temperature fell to 31.9°, wind, W.S.W. The minimum on the grass was 27.8°, also on the 3rd, and again on the 30th.

The rainfall was 1.520 inches, distributed over 17 days. The average rainfall for March in the thirty-five years, 1866-1900, inclusive, was 1.950 inches, and the average number of rainy days was 16.0. The rainfall, therefore, was below, while the rainy days were slightly above, the average. In 1867 the rainfall in March was very large—4.972 inches on 22 days. On the other hand, the smallest March rainfall was .288 inch on 8 days in 1893. In 1900, only .963 inch fell on 13 days. In 1905 the rainfall was 2.731 inches on 20 days.

The atmosphere was foggy in the city on the 2nd, 10th and 13th. High winds were noted on 13 days, reaching the force of a gale on 3 occasions—namely, the 11th, 15th, and 26th. Snow or sleet occurred on the 11th, 12th, 13th, 24th, 25th, and 26th; hail also fell on the 11th, 13th, 18th, 24th, 25th and 26th. Temperature reached or exceeded 50° in the screen on 17 days, compared with 20 days in 1905, 10 days in 1904, 18 days in 1903, 23 days in 1902, only 6 days in 1901, only 5 days in 1900, 19 days in 1899, 9 in 1898, 14 in 1897, and 21 in 1896. It fell to 32° in the screen on three nights—the 3rd, 13th and 14th—and on the 16th it rose to 59.9°. The minima on the grass were 32° or less on 12 nights, compared with 8 nights in 1905, 13 in 1904, 4 in 1903, 5 in 1902, 11 in 1901, 14 in 1900, 13 in 1899, 15 in 1898, 9 in 1897, and 8 in 1896.

The rainfall in Dublin during the three months ending March 31st amounted to 7.291 inches on 59 days, compared with 5.378 inches on 46 days in 1905, 7.938 inches on 55 days in 1904, 9.126 inches on 61 days in 1903, 5.114 inches on 43 days in 1902, 5.656 inches on 46 days in 1901, 6.698 inches on 63 days in 1900, only 1.650 inches on but 32 days in 1899, and a thirty-five years' (1866-1900 inclusive) average of 6.170 inches on 50.0 days.

At the Normal Climatological Station in Trinity College, Dublin, Mr. Thomas H. Hill, Sch., reports that the mean

height of the barometer was 30.023 inches, the highest reading observed being 30.482 inches at 9 p.m. of the 19th and at 9 a.m. of the 20th; the lowest, 29.062 inches at 9 a.m. of the 11th. The mean temperature was 44.1°, the mean dry-bulb reading at 9 a.m. and 9 p.m. being 43.8°. Rain fell on 16 days to the amount of 1.382 inches, .482 inch being measured on the 10th. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 122.8, giving a daily average of 4.0 hours. The corresponding figures for 1904 were 89.75 hours and 2.9 hours, and for 1905, 146.0 hours and 4.7 hours. The mean temperature of the soil at 9 a.m. was 43.1° at a depth of one foot, and 44.0° at a depth of 4 feet.

Dr. B. H. Steede reports that at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall was 1.785 inches on 17 days, compared with 4.212 inches on 23 days in 1905, 2.605 inches on 17 days in 1904, 6.186 inches on 30 days in 1903, 1.417 inches on 19 days in 1902, 1.798 inches on 14 days in 1901, and .892 inch on 12 days in 1900. On the 10th .500 inch fell, and on the 13th .407 inch. The total rainfall at this station from January 1 to March 31, inclusive, was 8.600 inches on 56 days, compared with 6.387 inches on 44 days in the first quarter of 1905, 10.323 inches on 59 days in that of 1904, 13.602 inches on 65 days in that of 1903, 6.006 inches on 41 days in the same period of 1902, 6.635 inches on 39 days in that of 1901, and 10.631 inches on 57 days in that of 1900. The extremes of temperature were—highest, 57.3° on the 16th; lowest, 31.0° on the 14th.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, 1.755 inches of rain fell on 13 days. The corresponding figures for March, 1900, were 1.320 inches of rain on 14 days, for 1901, 1.840 inches on 14 days, for 1902, 1.660 inches on 17 days, for 1903, 5.050 inches on 25 days, for 1904, 2.415 inches on 17 days, and for 1905, 4.005 inches on 21 days. The maximal fall in 24 hours was .500 inch on the 10th. The total rainfall since January 1, equals 7.665 inches on 41 days, compared with 11.756 inches on 58 days in the first quarter of 1900, 7.260 inches on 41 days in the same period of 1901, 6.110 inches on 34 days in 1902, 11.220 inches on 54 days in 1903, 8.107 inches on 53 days in 1904, and 5.660 inches on 41 days in 1905.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 17 days to the amount of 1.80 inches, compared with 2.20 inches on 13 days in 1901, 1.98 inches

on 18 days in 1902, 4.53 inches on 28 days in 1903, 2.50 inches on 21 days in 1904, and 3.31 inches on 28 days in 1905. The greatest daily rainfall was .43 inch on the 10th. The temperature in the shade ranged from 59° on the 16th to 32° on the 3rd. The mean shade temperature was 43.9°, compared with 41.2° in 1901, 46.4° in 1902, 45.7° in 1903, 44.1° in 1904, and 45.0° in 1905. Since January 1st, 1906, the rainfall at this station amounts to 8.67 inches on 56 days, compared with 6.71 inches on 40 days in the first quarter of 1901, 7.02 inches on 43 days in 1902, 11.36 inches on 62 days in 1903, 10.14 inches on 67 days in 1904, and 6.76 inches on 56 days in 1905.

At White Cross, Stillorgan, Miss Muriel O'Sullivan measured 1.675 inches of rain on 17 days, the maximum in 24 hours being .405 inch on the 10th. At this station the rainfall in the first quarter of 1905 equals 7.810 inches on 56 days, compared with 6.398 inches on 48 days in 1905.

Dr. C. Joynt, F.R.C.P.I., returns the rainfall at 21 Leeson Park, Dublin, at 1.575 inches on 17 days, .495 inch being measured on the 10th.

The rainfall at Cloneevin, Killiney, Co. Dublin, as returned by Mr. Robert O'B. Furlong, C.B., was 1.52 inches on 18 days, compared with 3.42 inches on 21 days in 1905, 2.01 inches on 17 days in 1904, 3.40 inches on 29 days in 1903, 1.50 inches on 21 days in 1902, 1.57 inches on 17 days in 1901, .94 inch on 14 days in 1900, and a twenty-one years' (1885-1905) average of 1.931 inches on 16.6 days. The maximum in the 20 years was 3.59 inches, in 1888; the minimum was .26 inch, in 1893. The heaviest fall in 24 hours was .37 inch on the 10th. At this station the total rainfall since January 1 was 6.91 inches on 57 days, compared with 6.50 inches on 47 days in the first quarter of 1905. Snow or sleet or hail was noticed on 9 days.

Mr. T. Bateman returns the rainfall at the Green, Malahide, Co. Dublin, at 1.071 inches on 15 days, compared with 3.473 inches on 24 days in 1905. The extremes of temperature in the shade were—highest, 59° on the 6th; lowest, 26° on the 12th; the mean temperature being 41.9°

Mr. W. Miller registered 1.19 inches of rain at Wellesley Terrace, Cork, on 14 days. The greatest fall in 24 hours was 0.30 inch on the 10th. The rainfall was 1.27 inches in defect of the average for March. The rainfall of the first quarter of 1906 was 9.46 inches, or 0.44 inch less than the average.

The Rev. Arthur Wilson, M.A., writing from Dunmanway

Rectory, Co. Cork, states that 3.145 inches of rain fell there in March, .79 inch being measured on the 7th, .64 inch on the 10th, and .41 inch on the 14th. The rainfall for the first quarter of 1906 equals 17.340 inches.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 17 days to the total amount of 1.623 inches, the largest measurement being 515 inch on the 10th. The duration of bright sunshine was 116.5 hours, of which 10.3 hours occurred on the 28th.

Dr. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, reports that the mean temperature at that health resort was 44.5°, being 0.5° above the average for March during 19 previous years (1873-83 and 1898-1905). The extremes were—highest 60° on the 16th, lowest 31.5° on the 3rd. At Bournemouth the mean was 42.3°, the extremes being—highest 56° on the 7th, 8th, and 18th; lowest 27° on the 23rd. The average mean temperature at Kingstown during the past five winter months, November, December, January, February, and March, was 43.8°, whereas that for the south coast of England, from Portland Bill to Dungeness, was 43.3°, that for Bournemouth being as low as 41.8°. Now that the vernal equinox has passed this relative condition of temperature is becoming reversed as the summer solstice approaches, and from the last-named period the summer heat on the south coast of England becomes great, and at times oppressive, especially so to invalids, while at Kingstown it will be comparatively mild. From a paper which appeared in the number of this Journal for December, 1903, and from subsequent records, it can be stated that this relative condition of temperature has prevailed during the past 8 years. The mean daily range of temperature at Kingstown was 9.9°; at Bournemouth it was 11.8°. The mean temperature of the sea at Sandycove bathing-place was 42.6°, being 0.6° below the average for the month during the previous 8 years. The relative humidity was 76 per cent., being the average for the month during the past 5 years. The rainfall at Kingstown was 1.50 inches on 15 days, being 0.5 inch below the average for the month during 16 previous years (1873-83 and 1901-05). The greatest quantity measured in 24 hours was 0.50 inch on the 10th. The total duration of bright sunshine was 137.3 hours, compared with 116.5 hours at the Ordnance Survey Office, Phoenix Park, only 106.2 hours at Valentia, 78.7 hours at Birr Castle, 148.8 hours at Southport, and 135.5 hours at St. Leonards.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XXII.—*The Frontiers of Death in Surgery and the Question of Operation in Extremis.* By CHARLES GREENE CUMSTON, M.D., Boston, Mass.

THE incessant progress of surgery, sanctioned by almost un-hoped-for success, has very greatly increased the indications for operation in imperative surgery. Certain cases, which only a few years ago would have seemed hopeless, are to-day operated upon, and the wonderful results obtained show that the interference was justified. It is not, unfortunately, always thus, for all human power has its limits. There are patients who, when seen by the surgeon, represent organisms which are ruined, and where all science loses its rights. The question of interfering in these cases is a difficult problem to solve, and in what is to follow I will rapidly enumerate those affections which represent that class coming under the head of imperative surgery, after which I will study those symptoms which will allow one to make a prognosis and decide whether or not to operate, at the same time discussing certain conditions which relate to the general and constitutional condition of patients in general.

It would be impossible to enumerate all those diseases which end in an imperative operation, and I will merely endeavour to classify as methodically as possible those which most frequently come under daily observation. Numerous are the traumatisms which may necessitate an operation of extreme urgency, likewise conditions very nearly related in reality or in appearance to the approach of death. These we will mention according to the anatomical region in which they occur.

(1.) Fractures of the base or other parts of the skull, with or without wounds; bullet wounds of the cranium, more particularly of the orbit, mouth or ear.

(2.) Wounds of the neck involving large vessels, fractures and wounds of the larynx and trachea, with their always possible complication—œdema of the glottis. Burns of the pharynx, œsophagus and the stomach, with all their complications.

(3.) Closed traumatisms of the chest and rupture of the lung; penetrating wounds of the lung and pleura; thoraco-abdominal wounds; ruptures and wounds of the diaphragm, pericardium and heart.

(4.) Contusions and wounds of the abdomen, with all their serious complications; contusions, wounds, and ruptures of the liver and biliary tract, of the spleen or kidneys, mesentery and intestine.

(5.) Traumatisms of the hypogastric region and wounds or rupture of the bladder, rectum, or a pregnant or non-pregnant uterus.

(6.) And, lastly, traumatisms of the limbs, compound fractures and extensive crushing.

Severe hæmorrhage, which so frequently endangers life, may be divided into two large classes, the first of which comprises external hæmorrhage. External loss of blood is produced by the most varied lesions, and there is not a single region of the body which cannot give rise to it. Among them, however, one should give a separate place to uterine hæmorrhage of any kind, whether due to placenta prævia, retained placenta—either total or only a portion of

it—or from some disease of the organ itself. To this same particular group belong secondary hæmorrhages following vaginal operations. The second class is composed of internal hæmorrhages, which may also result from different kinds of traumatisms, whether some internal organ has been the recipient of an injury without any solution of continuity in the integuments, or on account of the very small proportions of the latter the blood is prevented from escaping outwardly, and flows into one of the internal cavities of the body. The extreme frequency and great importance of peritoneal inundation, due to a rupture of an extra-uterine gestation sac should be mentioned here, and this same accident may also occur, although very rarely, from rupture of a pregnant uterus.

Nervous shock, which is the symptomatic *ensemble* of a very complex ætiology, is still another frequent consequence of major traumatisms, especially when the structures involved are the spinal column or the skull. It may also arise after traumatisms of the abdomen or during the progress of peritoneal infections, and the peculiar aspect that it then assumes makes it a special form of shock, ordinarily termed abdominal.

The shaking up following major surgical operations, by acting in a manner as yet poorly elucidated, perhaps by reflex action on the nervous system and vascular apparatus, is still another very interesting variety of shock.

Infections are, with traumatisms, the most important class of affections which may result in the most serious outcome. It would be a difficult matter to enumerate all, but I would particularly mention, beside the most varied type of infection, infectious phlegmon of the neck, empyema of the pleural cavity, abscess of the liver, hypophrenic perinephritic, hypogastric and iliac pus collections, urinary abscess and so forth, representing a series of conditions which may occupy a very important place in the history of imperative surgery.

Peritonitis—a disease of extreme gravity—represents a

very large class of imperative interventions. Primary or secondary peritonitis, due to tuberculosis, the streptococcus, occasionally the pneumococcus; those which follow the extension of uterine or tubal infections from the rupture of their pockets of suppuration; the torsion of the pedicles of pelvic or abdominal tumours; and, above all, the peritonitis resulting from appendicitis, from perforation of ulcer of the stomach or duodenum, peritonitis from intestinal perforation in typhoid fever, puerperal peritonitis followed or not by generalised puerperal infection, are all conditions which usually require immediate action on the part of the surgeon. Including intestinal occlusion and strangulated hernia in the same class as peritonitis and the infections, as we do, is because these accidents may give rise to peritoneal infection, and, what is still worse, to stercoræmia.

In terminating, we would point out that the surgeon is often called upon to operate during the progress or at the end of various cachexiæ, whether they are the final termination of some diathesis—as, for example, diabetes—or both from a diathesis and suppuration. These conditions should never be overlooked nor neglected when in presence of an urgent operative case, and I shall revert to this subject again when speaking of the influence of diathetic diseases on the operative indications in imperative surgery.

Surgeons are frequently called upon to judge of the exact probability of an approaching end, and we all know what a very great interest, both morally and from the standpoint of practice, there is, under these circumstances, to determine whether or not the patient is already *in articulo mortis*. By this we mean the condition of absolute ruin of the organism which will shortly and surely be followed by death. If there was any symptomatic *ensemble* as, for instance, exists in meningitis, the task would be very greatly simplified. But the approach of death is not a morbid entity, and as there is not one but many ways in which it supervenes with a variable pro-

gress according to the diseases which afflict the patient, the symptomatic complex of the near end varies indefinitely. Death does not take us all in the same way. Sometimes it strikes with a fearful brutality, at others with all the refinements of slow cruelty. Human beings do not all conduct themselves alike at its approach; some, tired of a useless struggle, give themselves up, while others hold out up to the very end an obstinate defence of their vitality, only giving up the combat after the *coup de grace*. No matter how complex and how different may be the group of signs indicative of approaching death, they can be divided into four classes—namely, the general aspect of the patient, the condition of circulation and respiration, the condition of certain secretions, excretions, and, lastly, the apparent changes which have taken place in the functions of the nervous system. We will now take up in detail each one of these four subjects, and study the nature and prognostic value of the signs to which each gives rise.

The general aspect of a dying man is most striking—the indifference to everything surrounding him and his unconsciousness of suffering. This is not a condition always present, because when speaking of the changes in the nervous system I will show that this sign may be wanting; but it is the rule in a large majority of cases. The patient who is about to die is indifferent and insensible; within an hour he was occupied with those surrounding him, but suddenly he ceases in his lamentations and complaints. Another, who has been tortured by such localised pain that he was obliged to cry out, will suddenly become insensible to such an extent that pressure exercised upon the painful point does not appear to awaken the slightest sensation. These signs are certainly such as to render the prognosis fatal within a very short time.

Considering now the expression of the face, it should be said that it cannot furnish us with any knowledge of an infallible prognostic value, but by carefully observing it an indefinite and vague impression may be gathered

which, without giving one any exact clinical indication, will, however, very frequently make the observing and educated practitioner suspect the approach of a fatal outcome. The widely opened eyes, sunken in that earthy coloured face, present a strange fixity; the globes remain immovable, the eye-lids likewise, the extreme dilatation of the pupil, which no longer reacts to light, represents the death of sight. The nose, which is pinched, is cold: the nostrils vibrate feebly, although occasionally they may move with great rapidity. The open mouth, whose withered lips are in contact with the dental arches, is half opened, and the lower jaw is agitated by a convulsive chewing movement. If one leans over this half opened mouth the breath comes to the observer's face like a weak current of cold air on account of the lowering of the temperature of the gases expelled during expiration. At the same time the breath has a special fœtid odour, quite similar to that of a room in which a cadaver has been kept. This peculiar cadaveric odour of the breath is a sign which never misleads: these unhealthy gusts precede the supreme breath, the last one which will be expired from the lips of the dying man. Such is the general aspect and expression of the dying. They realise an *ensemble* of a real prognostic value, and when encountered the surgeon should do away with all thought of operating, which would be useless, because although he may be able to aid a threatened life, he cannot vanquish death, which is already victorious.

We now come to the condition of the pulse and circulation, which give us most important signs. The pulse shows the condition of the heart and the circulation. It faithfully indicates the result of reciprocal influences which the great central motor and the peripheral capillaries exert upon each other. Now, if auscultation gives in a most precise way the nature and the degree of cardiac lesions, the pulse, by its regularity and fulness, indicates the degree of myocardiac tonicity and functional compensation. The pulse, considered from the surgical stand-

point, presents three important characters—namely, its frequency, amplitude, and rhythm—as well as the various modalities according to which these three characters become combined, varying in infinite ways and multiple complexities. It is by a close analysis and an attentive examination that the surgeon will obtain the most important clinical knowledge of the case and the most decisive indications for interference.

Now, in point of fact, in each one of the conditions that have been mentioned as giving rise to cases of imperative operations it is the pulse which will indicate the imminence of the danger and the nearness of a fatal issue. In the major traumatisms the pulse is usually small and very frequent, and the degree of these two characters measures the gravity of the situation. But it is especially when the pulse is small, and at the same time slow and weak, that one may, when in presence of this symptomatic *ensemble* of the severest cerebral commotion, await the worst immediate consequences. These facts are applicable to cases of nervous shock, upon which it is unnecessary to further insist. In hæmorrhage, and more especially when it is internal, the pulse is rapid, small, and will almost escape detection. The examining finger feels the shock of the beat less and less, and this depression, when it becomes progressive, is of the gravest import, especially so if it continues after the use of injections of artificial serum.

We now come to those affections in which the prognostic value of the pulse attains its highest importance—namely, the various infections. These include the extensive class of peritonitides, which will be considered more fully further on. In localised infections the pulse and temperature ordinarily follow each other, and the simultaneous rise of their respective curves belong to the usual symptomatic complex of fever. Under the most varied circumstances and diseases this co-ordination of the pulse and temperature is excellent as far as the prognosis is concerned. Nevertheless, as soon as an acute inflammatory infection is replaced by a generalised infection, more or less viru-

lent, the correlation between the pulse and temperature ceases—the former rises and the latter becomes lower. In some cases it is the pulse which increases in frequency, while the temperature curve becomes hypothermic; and here we are dealing with the pulse of infection, as is observed, for example, in the hypertoxic forms of appendicitis. In other cases it is just the reverse, and the pulse becomes weaker as the rise in temperature becomes greater. The signification of this phenomenon is the early arrival of death. In both cases it will be seen that it is the continually increasing difference between the corresponding points of the two superimposed curves which measures almost mathematically the imminent danger.

In studying the numerous cases of imperative surgery of all kinds we shall always find this assertion verified; all patients presenting a rapid and weak pulse, with the temperature at, or below, normal, will die whether operated upon or not, and under no other circumstances does the condition of the pulse attain such a high value. Consequently, the diagnosis, as well as the prognosis, in surgical affections of the abdomen, particularly in peritonitis, no matter what may be its nature or origin, is revealed by the study of the pulse and temperature. In these affections the pulse is usually rapid, very small, frequently irregular, and, at an advanced period of the process, becomes imperceptible, and cannot be counted. If the infection progresses, if the danger increases, the frequency and the smallness of the pulse also augment at the same time. Now, of these two factors—namely, frequency and smallness—it is the latter which, above all, should be considered. If the beats vary from 140 to 150, but retain sufficient force to be counted with ease, all hope should not be given up, but, on the contrary, if the pulse is extremely rapid, small, irregular and intermittent, the patient will soon die. Consequently, it is the amplitude and strength of the pulse which should be particularly taken into consideration, and when these two conditions are well marked one may operate with some small chance of success.

From what has been said one may conclude that the examination of the pulse is not only an element in the prognosis, but that it is the best source from which to obtain all practical indications. Although the interpretation of the results of this examination varies with each affection and in each particular case, it may be admitted in a general way that the most important characters of the pulse in surgery are to be found in its amplitude and the relation of its curve with that of the elevation of temperature, and that as far as the prognosis of a near death and the operative indications in cases of extreme urgency, if the condition of the pulse, no more than other symptoms present, is not alone sufficient to settle the question, it nevertheless remains the fundamental element in favour of or against the chances of the patient's recovery.

The respiration will also give indications which, although not so important as those obtained by the pulse, should never be neglected. One should take into consideration the rhythm, frequency and amplitude of the respiratory movements. These do not follow the pulse, and they may become increased or lowered quite independently, but the most unfortunate condition is certainly when there is discord between their frequency and that of the pulse. A very slow or a very rapid respiration, and especially any irregularity of the rhythm and of amplitude, are also very bad symptoms, testifying to a profound weakness of the vitality. There is also a sign which is most worthy of remark in many moribunds—namely, the reflex automatic character of the respiration; regular and superficial, these movements give to the thorax the appearance of a bellows.

The temperature and its prognostic importance may be quite properly considered here relative to the signs drawn from the condition of the circulation and the respiration, because the physiological thermic phenomenon is intimately united to these two functions. The exactitude of the thermic condition, which can be mathematically registered by the thermometer, would seem, upon the first

glance, to be the principal and most precise indication of the prognosis; but this, however, is not the case. Now, although one may obtain a great deal from the extreme variations of the thermic curve, it must be said that these have nothing absolute in them. An extreme elevation of the temperature means imminent death only when accompanied by a miserable condition of the pulse, and when there is discord between these two indications it is the pulse upon which one should rely.

A considerable lowering of the local temperature in certain parts of the body, especially of the extremities and the nose, should also be mentioned. This sign is met with in a number of serious conditions, but it does not constitute a certain symptom of approaching death, because in many cases where this sign is present the patients ultimately recover.

The condition of some of the secretions and excretions should not escape the investigation of the clinician, and the results of this examination will often be fruitful. In the first place the skin, which is generally dry, almost like parchment, even in the axilla and groin, is the seat in certain irregularly distributed isolated regions of a particular sudation, the viscid products of which give to the examining finger a most disagreeable, cold sensation. Everywhere else it is dry, without elasticity, and has a greyish hue.

The secretion of the eyes, which is profoundly disturbed, does not take place, and dryness of the cornea and conjunctiva coincides with that of the nasal mucosa. The great Lasègue attached such a great importance to the latter signs that he did not hesitate to say that "a man who sneezes is not going to die and a child who sheds tears in crying is saved; the same may be said for subjects whose nasal secretion is present, even if other alarming symptoms are manifest."

The condition of the secretion and excretion of urine is of great importance, because the renal function plays a very important part in the general vital phenomena.

When it is going on normally it is by it that the organism rids itself of a large number of useless or dangerous materials, and in those cases of pathological intoxication it is by the urine that the elimination of the various toxins is accomplished. It may be readily understood that, when in the presence of serious conditions, or even hopeless ones, the condition of the urinary secretions should be closely examined. In cases of serious infection or major traumatism the disturbances in the renal secretion manifest themselves in two ways—namely, by absolute arrest (otherwise designated anuria) or in a more attenuated form, namely, marked diminution (commonly termed oliguria).

When the patient passes no urine there is a question to be considered which is not without importance—namely, Does anuria really exist, or is it simply in appearance? In other terms, is there only a defect in the excretion of urine, retained in the bladder on account of some mechanical disturbance of the urinary apparatus, or have the kidneys ceased to secrete? Percussion of the hypogastric region or, better still, the introduction of a catheter will remove all doubt, greatly to the profit of the prognosis. When the patient urinates but little, another cause of error intervenes but of quite a reverse nature to the foregoing. There may, in point of fact, be a production of a very small quantity of urine, which the bladder does not hold, and, on account of a weakening of the tonicity of the sphincters, the urine flows away from the urethra drop by drop, thus simulating incontinence from over-distension. The absence of suprapubic dulness or the introduction of a catheter, if necessary, will suffice to establish that in reality the urinary secretion is markedly decreased.

When clinically demonstrated, oliguria and anuria offer a very serious prognosis, and these symptoms during the progress of any form of infection show that the organism has reached an advanced state of failure. Thus, to give a single example, in intestinal obstruction or strangulated hernia, the considerable diminution of the urinary excre-

tion is an absolute indication of reno-stercoræmia, indicating a rapid extension of the infection. It goes without saying that the presence of pathologic elements in any marked quantity, such as sugar or albumin, in a scanty urine darkens the outlook, which will become all the more so in diabetic patients, or those who have been subjects of albuminuria, and who, after a traumatism, require surgical interference after having suddenly ceased to urinate. The only circumstances in which the gravity of the prognosis of arrest of the urinary secretion are mitigated is when it is possible to explain the anuria by a reflex reno-renal action set up by the existence of a localised affection of the region, such, for example, as anuria originating from a calculus.

One thing more which is very important is the age of the patient. In young subjects these profound disturbances of the renal function may be due to an acute nephritis, in which case the prognosis is far better. In elderly people it is frequently a sign of chronic old nephritis, the long standing and irreparable lesions of which considerably increase the actual danger. Generally speaking, oliguria and anuria indicate that the patient is a *noli me tangere*, and, consequently, should not be interfered with surgically; and when in spite of massive injections of normal salt solution these symptoms nevertheless persist, one can no longer be in doubt as to the early arrival of a fatal issue. One may consider himself fortunate if this timid therapeutic tentative does not contribute to hasten the final outcome, because it is in just these cases, where the renal secretion has become definitely stopped, that the terrible complication—acute pulmonary œdema—results from the hypodermoclysis, and carries off the patient. Without any doubt many very precious hints would be obtained by careful analysis of the urine, but this necessitates complicated techniques which cannot be thought of in these cases where the life of the human being always depends on the rapidity with which a decision is made.

The nervous system holds two functions under its control whose study presents a very great interest in patients supposed to be dying namely, the sensibility and motor functions. We have already said a few words relative to the subject of sensibility when speaking of the common condition of indifference preceding the final period of dissolution. It is one of the constituting elements of collapse, but it is not an absolute one, because, beside the category of prostrated moribunds, we have what may be termed the combative ones. In the latter class the exalted sensibility causes the approach of death to be still more painful; unconsciousness and muscular resolution give way to a fearful agitation. In their movements, which are simply gesticulations of revolt against suffering, in their râles, which are cries of pain and of powerless rage, one assists at all the horror of a fierce combat against the cruel adversary whose victory is absolutely assured.

As to the persistence of the motor functions it is occasionally made evident by a jest effected with a remarkable automatism, and here we have a very important sign of an approaching death. In this movement, which is designated by the name of carphology, the subject looks as if he were gathering together a number of scattered objects; sometimes it is the bed clothing which he throws off and pulls back alternately and incessantly with a mechanical regularity in some instances, and in the male only do we meet with carphology of the penis, which has nothing in common with an aberration of the genetic sense, which has been abolished for a long time.

In order to complete the subject of the condition of the nervous system in the dying it would be interesting to analyse their mental condition, but such a psychological study would take us too far from the domain of surgery. What a source of precious indications it gives for the practitioner habituated to read the mind of his patients, and when the prognosis remains in doubt, in spite of the information acquired by clinical investigation, with what a singular privilege of foresight the patient emits the

affirmation that his death is near—perhaps only within a minute or two before the words become frozen on his lips, which are closed for ever!

While endeavouring to form a prognosis and make a decision after the signs that have already been studied, the surgeon should resort to considerations of a more general order, but which are not without considerable interest. A rapid examination will, in the first place, indicate the patient's age, temperament and social condition, and these observations have certainly much importance. It is a very ordinary fact, but one which cannot be too often repeated, because it is a useful truth, that a young and robust subject, who has never suffered physically or morally from the vicissitudes of life, presents guarantees of resistance which are not to be expected in an individual advanced in age, debilitated and worn out by social and physiological misery. Although perhaps elementary, these considerations will nevertheless weigh in one of the plates of the balance for or against, and in some cases, joined to the weight of more decisive arguments, they will suffice to make the balance weigh in a positive or negative sense.

But here come other preoccupations to the mind of the surgeon which relate to the constitutional make-up of his patient. Diseases and accidents which may require an imperative operation do not exclusively strike individuals who were valid and in good health before. They may strike individuals who, for a more or less considerable length of time, have been affected by diathetic affections, such as tuberculosis, syphilis, diabetes, neoplasms, &c., and who may be more or less undermined by their diathesis, or have even arrived at the stage of cachexia. And, still more, these very diatheses may be the determining or complimentary cause of the lesion which gives rise to the question of an operation. In 1880 Verneuil thus posed the question before the International Congress of Medical Science, held at Amsterdam, as follows:—"Le praticien devra-t-il considerer toutes les maladies constitutionnelles

comme des contre-indications à l'emploi de la thérapeutique opératoire? Ira-t-il refuser à tous les diathésiques les bienfaits de la chirurgie armée? Laissera-t-il un scrofuleux s'épuiser par l'abondance de la suppuration? N'ouvrira-t-il pas l'abcès d'un rhumatisant, et ne lébridera-t-il pas l'anthrax d'un diabétique? Renoncera-t-il à prévenir, par une extirpation précoce et largement faite, la généralisation probable d'un néoplasme? Laissera-t-il suivre tranquillement sa marche à la septicémie aiguë, née à la suite de l'écrasement d'un membre? Se croisera-t-il les bras devant l'étranglement herniaire, les hémorrhagies, les rétentions, en un mot, devant tous les cas d'urgence, qui, aussi bien que les gens robustes, atteignent les invalides, quelquefois même les cachectiques?"

Let us now see what solutions he gives to the problem in his conclusions:—

"1. Les opérations chirurgicales ne sont point formellement contre-indiquées, chez les sujets atteints de maladies constitutionnelles; elles sont même, dans ces conditions, souvent permises, fréquemment utiles, parfois indispensables.

"2. Leur pronostic, toutefois, est beaucoup plus sérieux que chez les individus sains; il est surtout plus incertain, plus difficile à établir, rien ne pouvant faire prévoir sûrement à l'avance l'influence favorable ou l'influence nocive que le traumatisme exerce sur la maladie générale, pas plus que la manière, dont cette maladie, à son tour, réagira sur le processus réparateur local.

"3. Ce pronostic diffère pour les différentes maladies constitutionnelles.

"4. Le danger inhérent à la diathèse est minime, quand celle-ci est encore à l'état de dyscrasie; il augmente notablement, quand apparaissent des lésions chimiquement et histologiquement appréciables; il devient extrême, quand les grands viscères, foie, rate, rein, cœur, poumon, présentent des lésions avancées, sclérose, stéatose phlogose, ou, lorsqu'ils sont envahis par des produits patho-

logiques spéciaux à certains états diathésiques : tubercules, gommes, carcinomes et néoplasmes divers."

From this it becomes evident that nearly twenty-five years ago Verneuil already admitted that the diatheses which have arrived at the dyscrasic state are in no way contra-indications for surgical interferences, but he becomes more reserved when the lesions are histologically appreciable, and decides not to intervene when the specific pathologic productions have invaded the large viscera. The progress of science, however, has allowed surgeons to enter into a domain that Verneuil only timidly penetrated, although he was fully aware what successes might be met with in operations upon diathetic subjects, as, for example, surgical interference in diabetic individuals, when a careful asepsis closes the door to secondary infections.

In point of fact the term diathesis is merely a word which has for a long time been employed and abused for the purpose of sowing fear in the surgical mind. Every day one finds the same label of syphilitic diathesis applied, for example, to two subjects—one of whom comes and goes like everybody else without the slightest accident or functional disturbance; while the other shows by the inco-ordination of his movements and disturbances of the sensibility, his medullary lesion, or by his progressive cachexia and marked ascites, his specific hepatic insufficiency. In both of them the same word is used for indicating the affection, only in one the word alone exists for the time being, while in the other a fact becomes added—that of a serious lesion. We are, consequently, far from the timid conclusions offered by Verneuil, who admitted that visceral lesions rendered the prognosis which was already unfavourable far more serious. At the present time it may be said that the diathesis in itself is nothing, and that it is the lesion alone which creates the danger. In considering the general condition of the patient the surgeon, eliminating the diathetic affection, should be more pre-occupied with the lesions that it has produced in the large

organs and the visceral insufficiencies that it favours. It is not tuberculosis, diabetes, or syphilis, the obscure and hypothetical consequence of which should be thought of, but it is the condition of the heart, liver, kidneys, and lungs, each considered in itself and independently of general causes which have acted upon them, that will serve as a base upon which to form a prognosis and guide the decision as to the advisableness of operating.

Another factor comes into play here—namely, the condition of the principal viscera— but it has not the same importance as the foregoing conditions. In the strict point of view of their functional importance the only one which need be considered at present is whether or not fundamental differences exist. The different functions have not all an equal importance, and there are some which may become suspended for a certain time, and the patient will continue to live, but there are others whose complete and instantaneous arrest will, necessarily, result in death. Such, for example, is the circulation. Consequently, we would give the heart the foremost place. It is not a question here of its functional cessation which implies that death has occurred, but of a more or less marked weakness in its functional activity. No matter what various lesions may compromise its mechanism, they darken considerably the prognosis. When arrived at an advanced stage, when they have acted upon the other viscera, and when the disturbances that they bring about have resulted in a pulmonary, renal, or hepatic insufficiency, they at once become a distinct contra-indication for operation.

The condition of the liver, kidneys, and lungs still remains to be considered, and which of these different organs, whose absolute or relative integrity is the most important, and whose functional disturbance is the most to be feared, is a very complicated and difficult question, to which I can only briefly refer because it presents so many different aspects. There is in the first place one consideration which is simply common sense: while the

kidneys and the lungs are double organs, one of which may supply the functional insufficiency of the other, the liver is, on the contrary, a single organ, and those affections which bring about its total functional incapacity cause a complete suppression of physiological activity. As to the kidneys and lungs it is impossible to discuss the question of their priority from the standpoint of the relative importance of their integrity. To do this it would be necessary to enter into a long discussion of statistical considerations, pathological anatomy, and clinical medicine which would take too long to set forth and argue. Then, again, this is a question of secondary importance; but what is important to consider in a case of extreme urgency is to know whether there exists or not a contra-indication due to some pathological state of the kidneys or the lungs. Upon this point it is quite impossible to lay down any hard and fast rule. (One should be particular to discover if the way in which these viscera fulfil their functions is sufficient to uphold the vital resistance to a certain point. In the case of the kidney this is easily ascertained, because a quantitative examination of the urine, and, to a certain extent, a qualitative one, will give sufficiently precise data. For the lungs the question is more delicate. Auscultation and a careful examination of the patient will nevertheless furnish some very precious signs which will reveal the manner in which the respiratory phenomena are being accomplished, and whether or not they are compatible with chances of survival and the possibility of operating.

Let us suppose that after a careful examination, and after having minutely weighed the "pros" and "cons," it is decided to operate, how and to what extent shall the operation be done? Here one is in the presence of an individual seriously afflicted by some infectious process, extremely weakened by loss of blood, violently shaken by nervous commotion, or arrived at the extreme limit of a suppurative cachexia; these are certainly conditions which differ from usual circumstances, and which also

differ from the ordinary from a therapeutic standpoint. The first indication which imposes itself is to reduce the narcosis to the very shortest possible time, or even to do without it altogether, if possible. In point of fact general narcosis amounts to an intoxication, occasionally necessary, but always more or less injurious no matter what agent may be employed. There are cases where the condition of indifference and extreme insensibility of the subject allows the operation to be performed without the use of any anæsthetic, and one will hardly note any movement of the face or jerks of the limbs indicating the weak persistency of sub-conscious reflex sensibility. In other cases pathological anæsthesia is not sufficiently complete, and the patient will react quite sharply to external excitations, so that he will be fully conscious of pain. On the other hand, his vital resistance is so precarious and compromised that it would be quite unsafe to submit him to the influence of a general anæsthetic. Under these circumstances local anæsthesia by injections of cocaïn will be quite sufficient in the larger number of instances, because usually the operations in this class of case are both simple and rapid.

Lastly, in rarer cases, where the general sensibility has remained intact, and where the patient seems in sufficiently good condition to be able to withstand general narcosis, this should be resorted to; but its duration should be made as short as possible in order to diminish its bad effects on an organism which is in a condition of lessened resistance. I cannot believe that the use of spinal anæsthesia with cocaïn is a wise practice, at least in these cases. Its results and ultimate consequences are not sufficiently known in order to conclude as to its absolute or relative superiority to narcoses obtained by the use of chloroform or ether. The two latter agents are by far the most frequently resorted to.

In order to make the duration of the narcosis as short as possible the patient should not be submitted to the anæsthetic until all preparations for the operation have

been carried out and the surgeon and assistants are prepared. During the anæsthesia the pulse should be carefully watched, and if it weakens or becomes slow the anæsthetic should be stopped or prudently administered, because the effects, always serious, of toxic syncope are all the more to be feared under these circumstances, since the general condition is more precarious and the vital resistance is lessened.

I cannot leave this question of general anæsthesia in imperative surgery without saying a word relative to the choice of the agent. It would seem that preference should be given to ether, because it has over chloroform the advantages which will be seen in comparing the following tables:—

ETHER.

Moderator and tonic of the heart.

Arrest of respiration before that of the heart.

Does not increase the loss of nitrogen.

Hardly ever induces syncope at the beginning.

May be given in relatively large doses.

CHLOROFORM.

Paralyses the heart.

Suddenly arrests the heart.

Increases the loss of nitrogen.

Produces it often.

Can only be given drop by drop.

From these considerations it would seem to result that ether is a less powerful factor of shock than chloroform, and consequently it should be used in preference to the latter. The presence of an open fire or numerous gas jets in a small room seem to be the only contra-indications for the exhibition of ether. After several years' use of ethyl-chloride as a general anæsthetic to induce primary narcosis before giving ether, and used in every imaginable class of case from infancy up to old age, I can most highly commend its use, because its action is rapid, and those who have administered this drug for me in my operations.

and who are most thoroughly competent in the matter of anæsthesia, have assured me that about one-half less ether is used during the narcosis when ethyl-chloride is employed. The induction of primary anæsthesia with nitrous oxide does not appeal to me, and in imperative surgery it is out of the question unless in a hospital, on account of the enormous bulk of the required apparatus. With ethyl-chloride we have never observed a single untoward effect, the pulse and respiration remaining perfectly normal, and the average time of complete narcosis has been about fifty seconds in adults and thirty in babies and young children.

The necessity of restricting the time of the anæsthesia brings us to another point—namely, to act rapidly and, consequently, simply; in other words, to limit the operation to those manœuvres which are strictly necessary to ward off the immediate danger, while further work for complete cure of the patient may be achieved later when the general condition will allow of a more prolonged and perfect secondary interference. One should not lose sight of the fact that, independently of the reasons given above, operative shock is partly a function of the duration of the interference, and that, in spite of the most careful hæmostasis, loss of blood will only be increased by long and complicated manœuvres, and that, lastly, the more an operation is prolonged the more the patient is exposed to secondary infection, against which the most careful asepsis does not always afford a guarantee. To open up and clean out hæmorrhagic or purulent foci, to ligate injured vessels, suture ruptured organs, remove, when it can be easily and quickly done, the diseased structures, freely irrigate and drain septic cavities—such are in a summary way the general indications to be fulfilled. No search should be made for an appendix which cannot be immediately found, no immediate and complicated amputation in major traumatism of the limbs, enterostomy and not resection in intestinal occlusions, the liberation without excision of the sac and reconstructing the canal in cases

of strangulated hernia, are things which should be done if one is desirous of being a successful scientific surgeon, and not merely an operator. And in this point of view let me say that the French maxim, "the best is the enemy of good," is absolutely common sense, and most decidedly applies to imperative surgery. If this simple advice is carried out one will more frequently save hopeless cases than otherwise; and sometimes it is astonishing what one may be able to obtain from the mysterious work of nature when he knows how to stimulate her efforts and effects by a properly located incision and good drainage.

In closing, let me say that in emergency surgery, with the patient at the frontiers of death, the free use of normal salt solution should always be resorted to, beginning before, kept up during, and continued after, the operation. In some cases, especially in severe internal or external hæmorrhage, sometimes in traumatic shock or septicæmia, the use of this agent represents the only therapeutic measure to which one can resort, and the success that it will give is sometimes more than favourable.

ART. XXIII. *Urticaria Pigmentosa*.^a By WALLACE BEATTY, M.D., F.R.C.P.I.; Physician to the Adelaide Hospital, Dublin. [Illustrated.]

THE pathological anatomy of urticaria pigmentosa is very remarkable. This consideration and the rarity of the disease (I have met with only two cases in my hospital practice during the past twenty-four years: a third case Dr. Walter Smith gave me the opportunity of seeing some years ago) have led me to hope that the exhibition of a living specimen and the description of the microscopical appearance of the lesions of this disease found by others, illustrated with microscopical preparations I have made myself, may not be unacceptable to the members of the Academy.

^a Read before the Section of Pathology in the Royal Academy of Medicine in Ireland, on Friday, March 16, 1906.

Urticaria pigmentosa—a name first introduced by the late Dr. Sangster, and now generally accepted—is characterised by the occurrence of yellowish, or brownish, or buff-coloured macules or wheal-like nodules, showing themselves usually (but not invariably) in early infancy—commonly before the third month. The nodules, pea-sized or larger, come out in fresh crops every few days, until a large part of the body becomes involved. Each nodule, unlike an ordinary wheal, persists for a long period—ordinary evanescent wheals are usually easily produced by friction of the nodules (factitious urticaria), and also by irritation of the intervening apparently healthy skin. The skin of all parts of the body may be involved, and even the buccal mucous membrane. Three forms are described: the nodular, the macular (in which the lesions are scarcely raised)—macules may result from subsiding nodular lesions, and the mixed nodular and macular—the commonest form. Three stages occur (1) the stage of development and increase, during which fresh nodules come—this lasts about a year; (2) the stationary stage; and (3) the stage of decline (decrease).

Itching, with typical urticaria wheals, is common, but may be absent. The patients, however, do not appear to suffer, and the general health is good. The main characters, therefore, are:—

(1) Origin in early infancy (the rule to which there are exceptions).

(2) The occurrence of nodules yellow, brown, or buff-coloured; these nodules persistent; pigmentation persistent.

(3) The presence of factitious urticaria (in almost all recorded cases) most easily produced at the site of the nodules.

This is a short account of the clinical appearances. The history and general condition of the child I now exhibit is as follows:—

Paul S. was brought to me by his mother for the first time in February, 1903. He was then seven months old.

Notes of the case.—The family history is good. Mother has had five children ; four alive ; one died of diphtheria after measles. Mother and father are healthy. All the children were born at full time. The mother had no miscarriages. The three children other than the patient are healthy, and have a normal skin.

Personal history of the child.—Born at full time. Skin appeared healthy at birth. When the child was a month old his mother noticed one big mark, raised, on one leg above the ankle ; others came after this. In a short time the face and other parts became affected. The spots are irritable, make the child uneasy, but in other respects the child is in good health. He has been fed on the mother's breast. Lesions typical of urticaria pigmentosa abundantly present on the trunk, extremities and face. The scalp free.

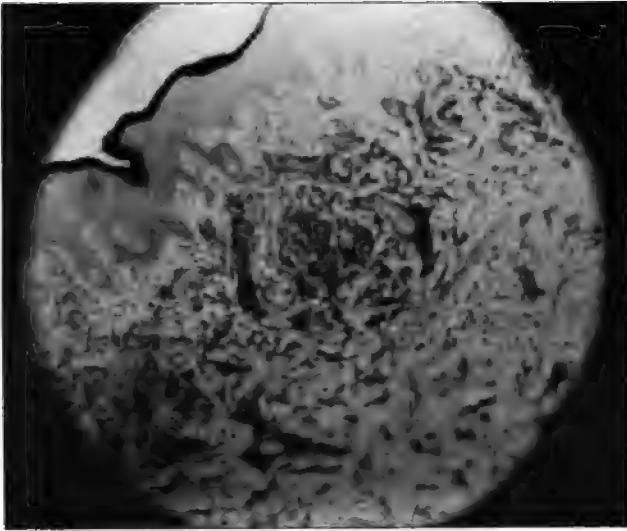
On May 1st, 1903, an erythematous blush appeared on forehead, extending back on scalp. The child was not ill. The next day a measly-like eruption developed over the body, but without cough. The child had no fever when I saw him on the 3rd of May, and was lively all through. I looked upon this passing eruption as a form of erythema. It disappeared in a few days.

There was very little variation in the appearance and distribution of the lesions during the year 1903, and early in 1904, when I exhibited the boy at the Dublin Biological Club, so one description will suffice.

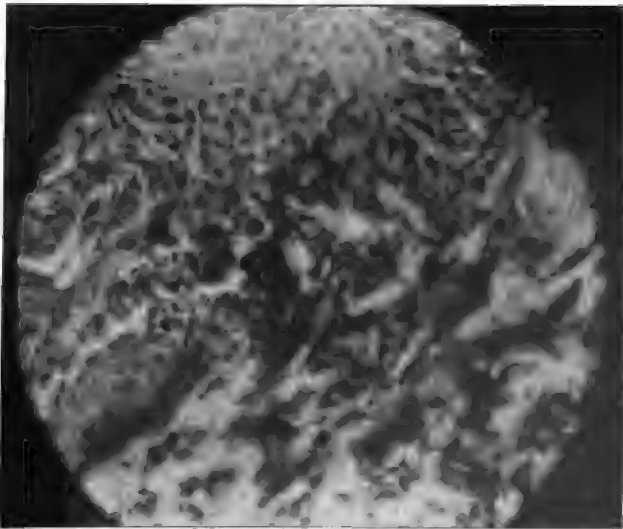
Scalp.—Free. Mother had never observed any spots on the scalp ; nothing, but a little scaliness of vertex.

Face.—Forehead free, except just above left eyebrow—here a very few small papules, $1\frac{1}{2}$ m.m. in diameter. On right temple, yellowish macules. *Eyelids.*—Both upper lids free ; slightly above inner canthus of the right side one small nodule $1\frac{1}{2}$ m.m. in diameter. Right lower eyelid free. On left lower eyelid one small, transversely elongated, pale yellow lesion at the outer part of the eyelid near the border of the lid. *Eyebrows.*—Right eyebrow free. On the left eyebrow two or three slightly elevated pale yellow lesions $1\frac{1}{2}$ m.m. in diameter. *Cheeks and Chin.*—Nodules about $\frac{1}{2}$ c.m. in diameter, buff-coloured, with some surrounding redness ; a kind of semicircle of pea-sized nodules round the chin, forming a curve from angle of mouth round chin, with concavity of the curve directed upwards. Lesions

DR. WALLACE BEATTY—"Urticaria Pigmentosa."

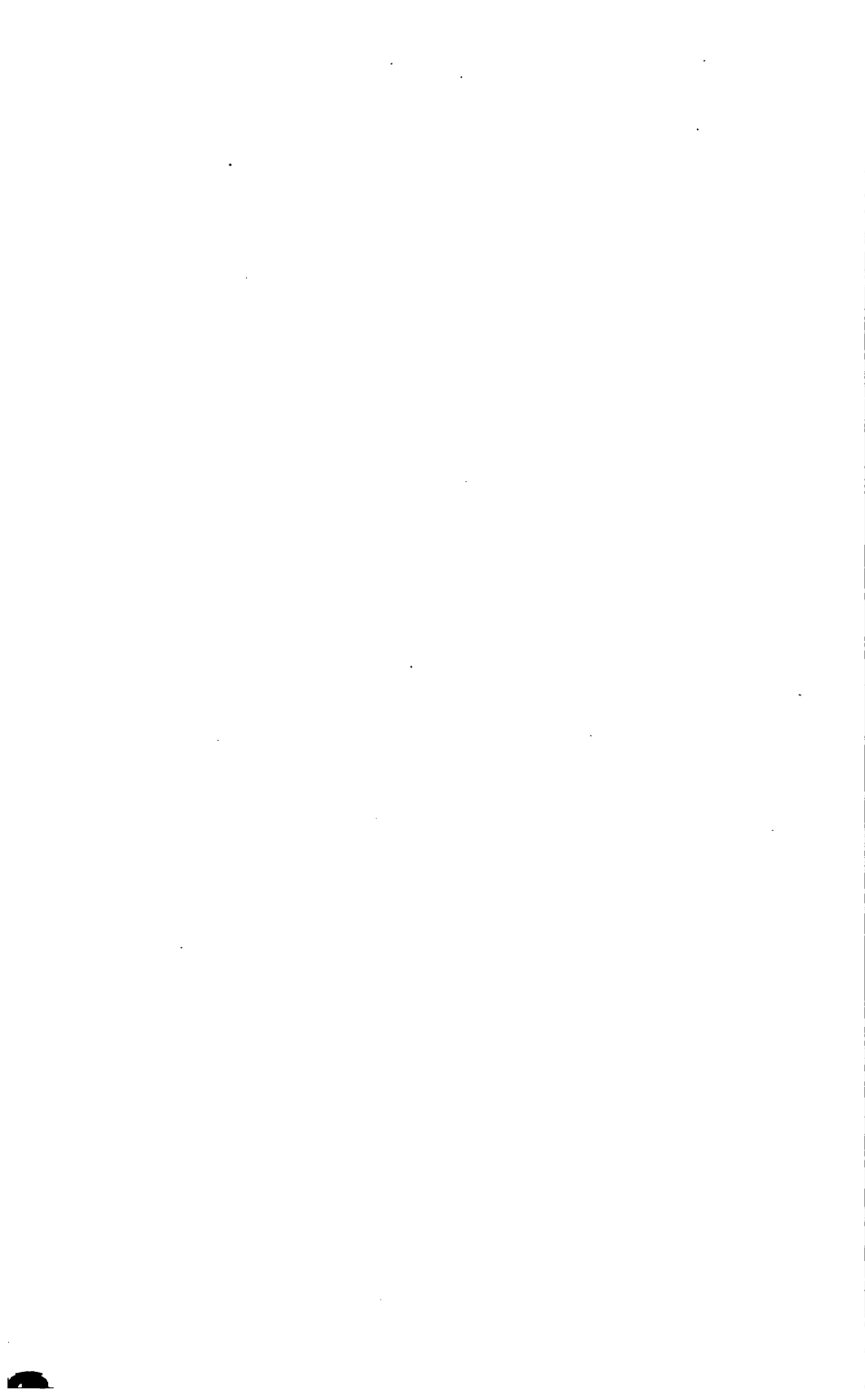


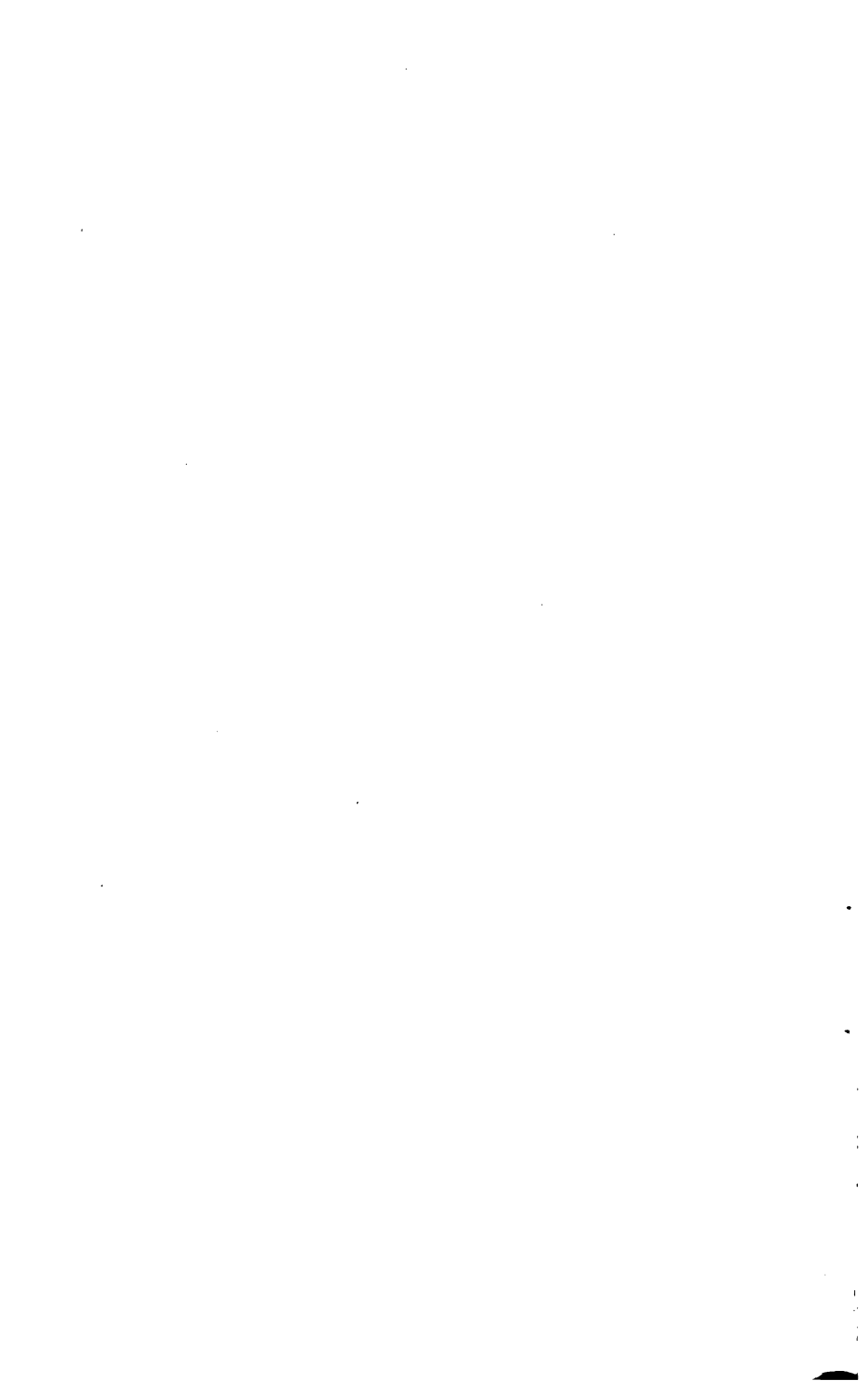
Section of Nodule of Urticaria Pigmentosa, showing masses of mast cells.
× 200.



Section of Nodule of Urticaria Pigmentosa, showing edge of a large mass
of mast cells. In places their cubical outline is visible.

× 400.





DR. WALLACE BEATTY—"Urticaria Pigmentosa."



*Photo by Mr. R. Forster,
311 Graffton Street,
Dublin*

DR. WALLACE BEATTY—"Urticaria Pigmentosa."



*Photo. by Mr. R. Forster,
31 Grafton Street,
Dublin.*

on cheeks mainly distributed below the level of a line from orifice of external auditory meatus to ala of nose on each side.

Ears.—A few lesions, 2 m.m. in diameter on outer surface and margin of lobules, of a light fawn colour, and soft to the touch.

Neck.—Lesions numerous.

Trunk.—Yellowish and brownish nodules and macules from 2 c.m.m. diameter upwards; some considerably larger, elongated, running in the direction of the ribs. A vertical line of solid nodules above gluteal cleft. On prepuce a few small papular lesions.

Upper extremities.—Lesions more numerous on flexor than on extensor surfaces. A thick, firm infiltration in right ante-cubital fossa. Palms and soles affected with plane-surfaced, raised, circular, reddish lesions of about $\frac{1}{2}$ c.m. in diameter.

Lower extremities.—Buff-coloured nodules and transversely elongated extensive infiltrations in creases or folds of the skin. On the back of one knee a transverse linear lesion.

Enlargement of the posterior cervical glands is present—a symptom specially noted by Dr. E. Graham Little. The lesions are, therefore, copiously distributed over the body, sparing the scalp. They consist of—

(1) Small circular nodules; very small and typically buff-coloured on lobules of ears. These nodules are about 2 m.m. in diameter. On cheeks and chin are similar nodules mixed up with larger ones.

(2) Circular nodules, larger, 3 m.m. to 1 or $1\frac{1}{2}$ c.m. in diameter.

(3) More extensive infiltrations running transversely on limbs.

(4) Large brownish-red macules on trunk. Factitious urticaria could be produced.

The pathological anatomy of urticaria pigmentosa was first studied by Thin,¹ who found a marked sub-epithelial cellular infiltration, which he thought was lupoid. To Unna is due the recognition of the true character of these cells—namely, a cellular infiltration in the upper part of the cutis made up of mast cells. The infiltration is present in the middle of the cutis mainly, but the papillæ con-

tain many mast cells, and columns of mast cells extend down around the vessels into the subcutaneous tissue.

Mast Cells.—Mast cells—a name given by Ehrlich—are described as cells—round, oval, or spindle-shaped, rarely branched—which contain in their protoplasm granules of a coarse kind, stainable by basic aniline dyes—that is, basophilic granules. They are brought out best by Unna's polychrome methylene blue, which stains the granules red, the nucleus blue. They are also well brought out by Pappenheim's stain, pyronin and methyl green (granules orange), or by dahlia (after Ehrlich). Mast cells occur in small numbers in health, being especially numerous in pigmented regions (scrotum, nipple), occur in considerable numbers in the neighbourhood of the epithelial growth in cutaneous cancers, but in urticaria pigmentosa they are found in enormous numbers, the nodules being made up entirely of these cells. Their shape, when closely packed, is cubical or polygonal. The nature and origin of mast cells is a disputed question. Unna believes they are derived from connective tissue cells, others consider they are derived from leucocytes which have escaped from the vessels and have formed granules in their protoplasm.²

With the exception of some flattening of the papillæ and the presence of pigment in the basal layer (and higher layers sometimes) of the rete, and dilatation of lymph spaces and blood vessels, no other material change has been found in this disease.

Where do these cells come from that are found in so great numbers in urticaria pigmentosa?

(1) Are they leucocytes escaped from the blood vessels? Unlikely, as mast cells have not been found in the blood in this disease. If the enormous masses of cells were escaped leucocytes they ought to be found in the blood of the patient.

(2) Are they due to proliferation of connective tissue cells, a sudden proliferation at the time of the formation of the nodule? A difficulty in accepting this view is that it is hard to conceive that proliferation could take place so

quickly, and especially that no karyokinetic figures have been found in the nuclei of the cells.

A third view, and one attributed to Unna, is that while mast cells are derived from connective tissue cells the accumulation which occurs in urticaria pigmentosa is due to a sweeping together from neighbouring parts of mast cells to one part.

Gilchrist's³ experiment is interesting. He examined a piece of unaffected skin of an urticaria pigmentosa case, a 4-minute, 10-minute, and 20-minute wheal. He found a greater number of mast cells than in the normal skin, and a progressive increase in the 4-minute, 10-minute, and 20-minute wheal, and the mast cells were not only around the vessels, but some distance from them. The conclusion arrived at is that the skin of an urticaria pigmentosa is richer in mast cells than an ordinary skin, and that the accumulation of cells is of connective tissue origin, and not from the blood.

As to the pathology, or true nature of urticaria pigmentosa, there is no certainty.

The two conditions present—urticarial elevations and a tumour of mast cells—have to be accounted for. No one accepts Thin's view that the infiltration is lupoid. It must be remembered that Thin's observations were made years ago, before the special stains for mast cells were generally known, and to him must be given the credit of having recognised that the lesions were due to a cellular infiltration beneath the epidermis.

Unna considers that a nervous irritation still unknown acts on the peripheral ganglia and determines a hyperæmia, then a deposit along the vessels of special cells—mast cells. He believes this accumulation is rather the result of a migration than of a reproduction at the place. The pigmentation is due to the prolonged irritation, and the pigment is deposited in the cylindrical cells of the rete.

Raymond considered that the disease depended upon a peculiar angioneurosis; that there is both a vasomotor hyperexcitability causing the wheals and a nutritional

change in the cutis, a dystrophy of the cutis, which ends in the formation of peculiar cells, so-called mast cells, mast cells being present in cases of chronic irritation of the connective tissue.

Brongersma⁴ (Amsterdam) considers that there is a congenital increased tendency for the connective tissue to change into mast cells in persons who develop urticaria pigmentosa, and that the urticarial wheal is but a secondary symptom. The tendency to urticaria can be explained, he says, by the observation that in places one finds large masses of mast cells, while in other places there exist quantities of the mast cell granules lying free. He considers enough attention has not been directed to this point. By the peculiar reactions which the mast cell granules give to staining re-agents, some peculiar, probably chemical, change has taken place in the protoplasm of the cells which have been transformed into mast cells. He thinks it possible that when these granules lie free in the lymph spaces and gain access to the blood they act as a toxin which is capable of producing the change in the superficial circulation which gives rise to the urticaria. He explains the collection and arrangement of mast cells round the vessels, hair follicles, sweat ducts, and glands by the supposition that the cells would naturally tend to accumulate in these situations where they meet resistance during their conveyance through the tissues. He thinks the toxic view would explain how the urticaria may sometimes only make its appearance on portions of skin which have been previously affected, the macules forming loci minoris resistentiæ.

Neisser believes that in urticaria pigmentosa we have to do with mast cell tumours like nævi.

The latest contribution to the study of urticaria pigmentosa is that of Dr. E. Graham Little⁵—a most excellent, clinical and microscopic account of the disease.

I shall now briefly describe the microscopic appearances I have found in my sections of a small nodule excised for

me by Mr. Gordon taken from the inside of one knee. I fixed and hardened one half of the nodule in absolute alcohol. The other half I fixed by placing for some hours in Zenker's⁶ fluid (*i.e.*, Müller's fluid saturated with corrosive sublimate plus 5 per cent. glacial acetic acid). I then washed it in water and hardened it in alcohol.

Mast Cells. I find them, as has been described, densely packed in the middle layer of the cutis, there being a narrow strip with very few mast cells between the dense accumulation and the epidermis. This superficial part of the cutis contains, however, a number of cell nuclei—whether they are mast cells imperfectly stained or cells about to become mast cells I cannot affirm. Where the mast cells are densely packed they are cubical in shape. Rows of mast cells are present round the blood vessels. Mast cells are seen in masses, rows, and lines. (See photomicrographs kindly taken for me by Professor J. Alfred Scott.

The staining of the granules in the protoplasm of the mast cells is interesting.

Sections of the portion of nodule fixed and hardened in absolute alcohol, when stained with Unna's polychrome methylene blue, and decolorised with glycerine ether mixture, show the granules of the mast cells very plainly stained red. Unna's polychrome methylene blue is methylene blue which has been treated with potassium carbonate or left for a long time. By-products (oxidation products) of methylene blue—*viz.*, methylene azure and methylene violet—develop, and possibly methylene red. The red staining of the granules has been attributed to methylene azure or to methylene red.

Sections from the portion of the nodule fixed in Zenker's fluid before final hardening in alcohol show granules bluish with polychrome methylene blue; but when stained with eosin, followed by alkaline methylene blue, they show the granules stained red by eosin. That is to say, the mast cell granules appear basophilic in alcohol fixed sections, acidophilic in "Zenker" fixed sections.

A similar observation I made in section of skin taken from a case of pemphigus foliaceus.

These considerations present themselves:—

(1) Has Zenker's fluid so altered the granules of the mast cells as to render them acidophilic instead of basophilic, as they appear to be when alcohol alone is used?

(2) Are the granules of the mast cells really basophilic? If the red colour of these granules is due to the methylene azure of polychrome methylene blue, it is to be noted that methylene azure is an oxidised methylene blue, and contains the SO_2 group—*i.e.*, a less basic body than the methylene blue from which it is derived.

Possibly the true explanation of the red colour of the granules of the mast cells, when the sections are treated with eosin, followed by Löffler's methylene blue, is that these granules are really stained by methylene azure. Nocht⁷ and Robin found that on bringing methylene blue and eosin together there is formed a methylene azure, along with other compounds. If so, the stain is practically the same as if polychrome methylene blue were used. However, the fixing agent is not without some influence, as the mast cell granules in sections made from the portion of the skin which was fixed in Zenker's fluid do not take the characteristic red colour, but a bluish colour, with polychrome methylene blue.

These, however, are chemical and histological questions which are beyond my knowledge. I simply throw them out as suggestions.

Pigment.—I did not find pigment granules, but the nodule from which the sections were taken was not apparently pigmented.

The connective tissue and elastic tissue.—Except that the fibres are displaced where the mast cell accumulations are these tissues appear well preserved. I prepared sections by both Weigert's and Unna's methods.

The blood.—The only observations I have made are:—(1) I could find no mast cells in the blood. (2) The lymphocytes were increased in number. Professor J. Alfred

Scott confirmed this observation. He found an equal number of lymphocytes and polynuclear leucocytes.

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- ⁷ Physiological Histology. Mann.

ART. XXIV.—*Appendicitis*.^a By DENIS KENNEDY, F.R.C.S.I.; Surgeon, Jervis Street Hospital, Dublin; Surgeon, Children's Hospital, Dublin.

It is quite usual to read in surgical text-books and in medical journals elaborate accounts of the indications for operation in appendicitis. The condition of the pulse, the temperature, and the tongue, the position of the legs, and numerous other signs and symptoms are all enumerated to show when we should operate; and, usually as a final touch to the picture, the writer gives us a couple of special signs which, when present, always make him recommend operative procedure. And all this forgetful of the fact that no two cases run on parallel lines. In consequence, we cannot wonder that the ordinary practitioner is confused as to the course he should adopt in these cases, and that there is a fixed idea in his mind that operation in appendicitis should be carried out only when the patient is on the brink of the precipice, that it is exceptionally dangerous, and that every effort should be made to bring the patient to convalescence without it. This certainly seems to be the practice in Dublin and throughout Ireland generally. I am of opinion that the subject ought to be viewed from quite a different standpoint, and that once the disease is diagnosticated, this in itself ought to be quite

^a Read before the Section of Surgery in the Royal Academy of Medicine in Ireland on Friday, February 23, 1906.

sufficient to have operation carried out. I refer, of course, to true acute appendicitis, and only to the acute condition, throughout my communication. I do not say that every case of appendicitis must be operated on to save the patient's life, but I do say that the results of early operative treatment are much better than those at present obtained by what is called expectant treatment. This is the opinion held by the large majority of the best surgeons in America and by many Continental surgeons of the highest repute.

Instead, therefore, of giving a long list of symptoms that call for operation I would give two or three conditions that are opposed to it—First, when a patient cannot be operated on under favourable circumstances, and by some one who knows how; second, when the patient is practically moribund; and third, when some visceral lesion is present, such as bad heart disease, which would contraindicate any operation whatever.

I can imagine some ten or fifteen years ago men laying down the law when operation should be carried out for intestinal obstruction or for strangulated hernia. I am old enough to have been taught that in the latter condition taxis was first to be tried, then a hot bath until the patient nearly fainted, then taxis again, then an anæsthetic, and finally taxis while the patient was under the influence of the anæsthetic. If the hernia were not then reduced, and the patient happened to be alive, the question of operation should be discussed. No wonder the mortality was high, either with or without operation. Pretty much the same idea at present prevails with regard to the treatment of appendicitis. When the circumscribed inflammation becomes diffuse, when the localised abscess bursts into the general peritoneal cavity, when the appendix is sloughing, in short, when the patient is in the worse possible condition for operation, and when the difficulties to the operator are almost insurmountable, then, and not till then, are we to attempt to get rid of the offending organ. Consequently, the duration of this most

painful illness is anything from three weeks to as many months, and the mortality is said to be from 20 to 25 per cent. With early operation the duration of the illness will be exactly eight days and the mortality nil. Besides, we do not expose our patient to an unnecessary procedure, as we are, I think, all agreed that once a person gets an attack of appendicitis, if not operated on during the attack, and should he survive, he must be operated on afterwards to prevent a recurrence.

There is a widespread notion in the profession, even among operating surgeons, that opening the abdomen during an attack of appendicitis is particularly dangerous. This I believe to be a complete fallacy. During the last two years I have operated on forty-three cases of acute appendicitis. The illness previous to operation varied from eight hours to about three weeks; the pathological conditions found were anything from simple appendicitis to gangrene of the appendix with diffuse peritonitis; the ages of the patients ranged from three to seventy-one years, and I have not had a single death.

If operation is carried out before complications have arisen appendectomy during an attack is just as safe as during the quiescent period; and when complications have arisen, such as peri-appendicular suppuration, operation is no longer a matter of choice, but of necessity.

Most of us are usually able to diagnosticate appendicitis when it occurs. None of us can tell what pathological conditions may be present or ensue during an attack. Diffuse peritonitis, formation of secondary abscess, sloughing of the appendix, intestinal obstruction, any or all may ensue from what was originally a mild attack, and we may have very little proof of their occurrence till it is too late for our patient.

To show the futility of expecting some cases to get well without operation, and to illustrate the dangers to our patient there may be in delay, with your permission I will give a brief history of some of the cases I have operated on.

CASE I.—Master E. F., I saw on Monday, the 17th of December,

1905. He was ill from the previous Friday, had persistent vomiting and continuous pain diffuse over the abdomen, but worse over the right iliac fossa. No motion of the bowels had occurred for three days, in spite of large quantities of purgatives that had been administered, and only one ounce of urine had been secreted during the previous twenty-four hours. His abdomen generally was distended, and the muscles over the right half were very rigid. Temperature was 101° , and his pulse-rate 115. I diagnosed appendicitis with ensuing ileus, and recommended immediate operation. Both the diagnosis and the treatment recommended were agreed to by my colleague Dr. Savage, whom I asked to see the patient in consultation. The boy was sent to a private nursing home, and I operated that evening, Mr. Tobin kindly assisting me. I found the inflamed appendix twisted like the letter **U** behind the cæcum, and so firmly fixed by adhesions that the lower end of the cæcum was bent backwards and upwards almost at right angles. The ileum was distended. On removing the appendix the cæcum resumed its normal position, and flatus at once began to gurgle through. There was some pus and a good deal of serous and plastic peritonitis in the neighbourhood, especially over the small intestine. I wiped away the pus, provided for drainage, and the boy made a rapid and complete recovery.

CASE II.—Frances B., aged five years, I was called to see on the 2nd of August, 1905. She was suffering from a typical attack of appendicitis. Two days subsequently Dr. Savage saw the case with me in consultation. The question of operation was discussed, but the child's mother strongly objected. As the disease seemed to be running a normal course, and as there were no urgent symptoms, we consented to wait and adopt the treatment of masterly inactivity. Nothing of consequence happened until the night of the 5th of August, when the child suddenly collapsed, her temperature falling from 102° to 96° . When I saw her in the early hours of Sunday morning her condition was one of profound collapse, with its associated symptoms. There was no longer any question of postponing operation if the child was to get the least chance of recovery. Dr. Savage again saw the case in consultation, and agreed as to its urgency. On account of the patient's condition she could not be removed to

a. private hospital, and, consequently, I had preparations made as quickly as possible for operation in her own home. On opening the abdomen by an incision over M'Burney's point I had the greatest difficulty in finding the appendix. I prolonged the incision upwards in front of the kidney, as a mass was to be felt in that region. I found a gangrenous appendix lying in a quantity of faecal pus along the posterior wall of the caecum. On removing the debris, which contained some faecal pellets, the outer coat of the posterior wall of the caecum ruptured spontaneously to the extent of about an inch. I attempted to suture both the appendiceal opening and the rent, but no suture would hold. I greatly feared sloughing of the caecum would ensue. I contented myself with wiping away the pus and debris as well as possible and packing the parts with gauze. I made a counter opening in the loin, and provided for drainage both through the loin and anteriorly. Nutrient enemata kept the child alive during the next twenty-four hours; then she began to take nourishment by the mouth. No motion of the bowels was allowed for the first five days on account of the bad condition of the caecum. The child made a perfect recovery, and has not even a ventral hernia as a sequel.

I am much indebted to the assistance of Dr. Savage in bringing this case to a successful issue both during and subsequent to the operation.

CASE III.—Miss M., aged twenty-eight years, I sent to Jervis Street Hospital in June, 1904. She suffered from a well-marked attack of appendicitis, and had been ill for twenty-four hours. I kept her under observation for a couple of days, carrying out the usual expectant treatment. She did not improve, and on the evening of the third day of her stay in hospital her temperature reached 105° after a pronounced rigor. I operated on the following morning after a consultation with my colleague Dr. Thompson. The appendix was greatly inflamed and distended, and there was well-marked evidence of general serous peritonitis throughout the whole abdomen, without a trace of any adhesion whatever. In a few hours more I have no doubt the abdomen would have been filled with pus. I removed the appendix, flushed out the abdomen with normal saline solution, and provided for free drainage. The patient made a complete

recovery. Through my delay in operating, which was due to the prevalent practice, I nearly sacrificed my patient's life.

CASE IV.—Mrs. B., aged seventy-one years, was sent to me to Jervis Street Hospital by my colleague Dr. Savage. Six years previously she had an attack of appendicitis, from which she recovered, but a large swelling remained in the right iliac fossa. It did not cause her any trouble, and, in consequence, she refused operation. On a Tuesday morning, as she was getting out of bed, she felt something give way in her abdomen; pain and vomiting quickly ensued. She developed intestinal obstruction with peritonitis, and although urged to operation by Dr. Savage she refused until the following Saturday, five days after her attack began. When I saw her in hospital she was in a semi-comatose condition, and had all the appearance of approaching death. I operated at once, making a long incision over the appendiceal region. The abdomen was filled with pus; there was no attempt at any limiting adhesion. I quickly removed the appendix and provided for free drainage. I neither douched nor in any way attended to the toilet of the peritoneum, for the simple reason that any delay would have caused the patient's death on the operating table. For forty-eight hours the dressings were constantly saturated with pus. Her bowels acted the day after operation, and she made a slow but good recovery, with no sequela, but a fistula from the peritoneal cavity. She left hospital eight weeks after the operation.

CASE V.—A young girl, aged twenty-two years, was admitted to Jervis Street Hospital, April, 1905. Twenty-four hours previously she attended the out-patient department complaining of some abdominal pain; she refused to be examined, and, consequently, was not prescribed for. She returned to her home; pain continued during the day and night, associated with vomiting. The following morning she collapsed, and was brought to hospital in the city ambulance. I saw her in consultation with my colleague Mr. Byrne. We diagnosticated perforating appendicitis, and carried out immediate operation. The whole region around the appendix and the pelvis were filled with pus, without any limiting adhesions. The appendix was intensely inflamed, and perforation had occurred through the cæcum, half an inch from the base of the appendix. I sutured the perforation, removed

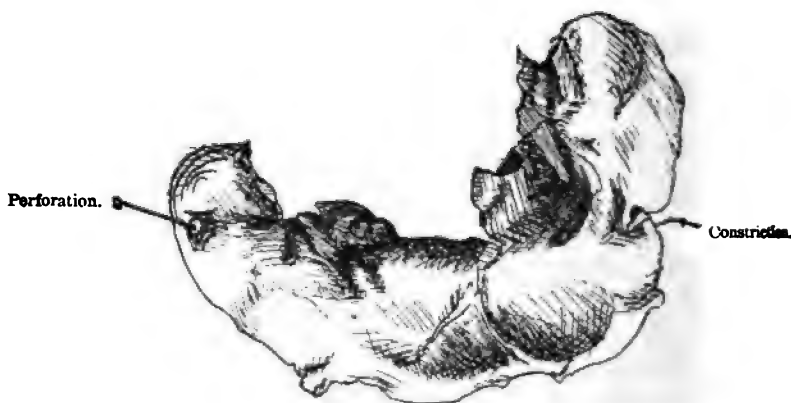
the appendix, wiped out the pus and debris with gauze sponges wet with hot saline solution, and provided for free drainage. No douching was employed. She made a good recovery.

CASE VI.—Mr. S., aged fifty-six years, I saw in consultation with Drs. Savage and O'Carroll in August, 1905. Patient was six days suffering from appendicitis, and a large swelling was present in the right half of the lower part of the abdomen. He had been a liberal drinker, suffered from fatty degeneration of the heart, with congestion of the lungs, liver and kidneys. Albumen was present in the urine in quantity. We were unanimous as to the gravity of the case, but the difficulty was to find a solution. The condition of his abdomen demanded operation, his general condition was totally opposed to it. On the advice of Dr. O'Carroll we decided to wait for twenty-four hours in the hope of improvement supervening. That night the patient had rigors, and next day his condition was decidedly worse. Consequently, I carried out operation, being assisted by Mr. Tobin and by Mr. Keegan, who gave the anæsthetic. I opened the abdomen by incision over the appendiceal region, and evacuated a large abscess from between the coils of small intestine and behind the cæcum. The suppuration was limited by marked adhesions. I could have removed the appendix only with great difficulty and a prolonged operation. I contented myself, therefore, with wiping out the pus and providing for free drainage. The patient made a good but protracted recovery under the care of his physician, Dr. Savage, in spite of the fact that three weeks after his operation he got an attack of profuse hæmoptysis, which was probably due to hæmorrhagic infarction of his lung. He can be seen again at all the Irish race meetings prosecuting his calling as a bookmaker with great vigor.

CASE VII.—Mr. M., aged thirty years. I was brought to Camden Street about 3 30 a.m. on the morning of the 23rd of November, 1905, to see this patient, who had gone to bed quite well on the previous night, but woke about midnight with violent pain in his abdomen, which was followed by vomiting. When I saw him he was collapsed, his legs were drawn up; there were great tenderness and rigidity of the muscles over the right side of the abdomen, especially over the iliac region. His temperature was 100°2, pulse-rate 115. I diagnosed fulminating appendicit

and sent him at once to Jervis Street Hospital in the ambulance. I operated a few hours subsequently. On opening the abdomen pus was everywhere present without a trace of any limiting adhesion. I found the appendix enormously distended, with a perforation about half an inch from its tip. Through this perforation pus was flowing freely into the abdominal and pelvic cavities. I removed the appendix, wiped out the pus, which

was present in quantity, and provided for free drainage. I used no douche. The patient made a rapid and complete recovery. His case is especially interesting from the fact that six months



Appendix, with constriction towards the caecal end and a small perforation near the tip, removed from Case VII.

previously he had an attack of enteric fever, which so resembled appendicitis that a positive diagnosis could only be made with the Widal reaction. He also suffered from well-marked mitral regurgitation.

With regard to the diagnosis of the disease, it does not as a rule present any great difficulty, especially in adults. Murphy, of Chicago, lays special stress on the order of the occurrence of the symptoms. He says—"There is first abdominal pain, sudden and severe, followed by nausea and vomiting, general abdominal sensitiveness, elevation of temperature, beginning from two to twenty-four hours after the onset of the pain. These symptoms occur, almost

without exception, in the above order, and when that order varies I always question the diagnosis." He also says "that temperature in acute appendicitis must always be present, and that it never precedes pain." I think this summing up of the symptoms is as near as we can get to a good guide to the early diagnosis or the normal illness in adults. Two symptoms that are often relied on for a diagnosis are very fallacious. First, the right leg I have never seen drawn up, even when an abscess was present. Both legs may be drawn up when diffuse peritonitis exists. Second, the most tender spot is not always M'Burney's point, but varies according to the position of the tip of the appendix.

The rectum, and in females the vagina, should always be examined to determine whether pelvic suppuration is present or not, and no examination of a child is satisfactory without an anæsthetic. In children the diagnosis sometimes presents great difficulty, as is illustrated by the following case:—

CASE VIII.—Baby K., aged three years, suffered for five days from violent spasms of abdominal pain; there was no vomiting, no elevation of temperature, and only slight constipation. During the intervals of the attacks of pain the child seemed well. On careful examination I found a thickening over the region of the appendix, and there was considerable tenderness present. The spasms of pain passed off gradually, the child's general condition improved, but the swelling and tenderness in the right iliac fossa seemed to get more pronounced. Consequently I recommended operation, which I carried out in the Private Hospital, 20 Mountjoy Square, assisted by Dr. Savage and Mr. Keegan. On incising over the appendiceal region I found a large mass adhering to the anterior abdominal wall. To get into the abdomen I prolonged my incision upwards, and was then able to separate the mass from the anterior parietes. I found the mass to consist of a very long, thick appendix, with the distal half enveloped by the lower part of the omentum. I amputated the appendix, excised the part of omentum involved, and removed the whole mass together. Professor McWeeney examined the specimen, and reported that it showed undoubted signs of having been the seat of repeated

attacks of inflammation; while the part of the appendix and omentum matted together were on the point of breaking down into an abscess. The child made a rapid and complete recovery

The incision I make for appendicectomy in acute cases is the one that crosses M'Burney's point. I avoid the muscle-splitting operation, as I believe its advantages are outweighed by its disadvantages. If the appendix is in an abnormal position it is difficult or impossible to find



Appendix, enveloped by omentum, removed from child, Baby K., aged three years.

it with such an incision, and if the incision has to be enlarged the operation presents many difficulties. Our aim in operating ought to be twofold—first, remove the offending organ if possible; secondly, where peri-appendicular suppuration exists, free drainage should be provided for. In some cases it is not possible to remove the appendix, however desirable it may be, without endangering the patient's life, especially when abscess exists. The manipulations necessary to free the appendix may cause serious injury to an inflamed bowel in the neighbourhood, or may carry infection to a wider area than was previously

involved; or the condition of the patient may be such as to forbid a prolonged operation. Fortunately, its removal is not always necessary to save the patient's life; but convalescence will be more prolonged, suppuration will be more persistent, and, consequently, there will be much more risk of a ventral hernia ensuing. Besides, a focus of infection is left in the abdomen which may give rise to trouble again in either the near or remote future. What, however, is absolutely essential is, that where pus is present, whether localised to the neighbourhood of the appendix or not, free drainage must be provided for. I think on this largely depends the success of the operation as a life-saving means. I employ for drainage a slit rubber tube with a gauze wick. I change the gauze as soon as it becomes saturated, as I believe once that occurs it acts as a plug, not as a drain.

We must remember that pus may be present in quantity from appendicitis either in the pelvis or in the retro-cæcal region, and no sign of it appear when we open the abdomen. Consequently, if we have to search for a suspected abscess these are the two most likely regions in which we will find it. Further, if pus exists free around the appendix it will most likely have made its way to the pelvis. The question of drainage through the vagina or rectum must then be considered. I have met with retro-cæcal appendicitis and suppuration in four cases. The condition may be suspected if, in connection with appendicitis, there are a fulness and tenderness in front of the renal region. In one of my cases in a child, already mentioned, the appendix was completely gangrenous, and lay well up in front of the kidney.

The points to be remembered in operating in these cases are, first, we must prolong our incision upwards, and, secondly, to reach the trouble we must draw the cæcum and ascending colon towards the middle line. We can thus remove the appendix, get rid of the pus, and establish free drainage through the loin or anteriorly without the least danger of the general peritoneal cavity becoming infected.

I am no believer in the extensive procedures that are sometimes carried out in cases where suppuration exists in connection with appendicitis. These consist in removing the appendix at any cost, in free manipulation of the intestine, in excising every portion of the omentum that comes near the pus, in breaking down adhesions freely, and in douching, swabbing, and paying elaborate attention to the toilet of the peritoneum. I am thoroughly convinced that whether suppuration is localised or diffuse, the peritoneum is well able to look after itself, if it gets a fair chance, by free exit being given to the pent-up inflammatory exudation, and that, when diffuse suppurative peritonitis exists, the quicker the operation is finished and the less manipulation there is of the intestine the better chance there is for the patient.

Douching, if used at all, should be employed only when the fluid used can escape by a counter-opening as freely as it enters the abdomen and when a large part of the abdominal cavity is infected. Under these conditions it is certainly harmless unless for the time it takes, but its benefit is a very doubtful quantity. Rough sponging injures the delicate endothelial lining of the peritoneum, and thereby tends to destroy its inherent power of resisting infection. I content myself with gently wiping away any pus that I find with a gauze sponge wet with normal saline solution. I have practically given up the use of the douche altogether in these cases. Manipulation of the intestine to any extent I look upon as being decidedly dangerous.

In conclusion I may say—

(1) The dangers of operating in an acute attack of appendicitis have been greatly exaggerated, and with proper care are most imaginary.

(2) When suppuration is diagnosticated, operation should not be delayed in the hope of adhesions being formed and the pus becoming circumscribed.

(3) Children who get the disease usually have to be operated on for recovery.

(4) Our motto in treating the disease should be—"Leave nothing to chance." Consequently, have the appendix removed as early as possible.

I owe an apology to the members of this Section for bringing such a well-discussed subject before them and for my inability to treat it in a communication such as this in anything like an exhaustive manner.

THE ETIOLOGY OF LEPROSY.

DR. E. S. GOODHUE, Government Physician, writes as follows, under date April 9, 1906, from The Doctorage, Government Road, Laaloa, Holualoa, Hawaii, T. H. :—"You will be glad to hear that Dr. W. J. Goodhue, Medical Superintendent of the Leper Settlement at Molokai, after several years investigation there, has been able to demonstrate the *Bacillus lepræ* of Hansen in the mosquito and in the bed-bug. I will quote from Dr. Goodhue's official (but as yet private) report to the Hawaiian Board of Health.—Feb. 10.—'We have since . . . been sectioning mosquitoes taken from various leper houses, but until last June without any apparent success. At that time it appeared that we had isolated bacilli in these series of experiments, but owing to the technique employed it was impossible to confirm this. . . . This method of research was then abandoned. . . . After repeated failures and constant re-examination of fresh specimens, success has come as far as demonstrating the *Bacillus lepræ* in the female mosquito (*Culex pungens*). . . . Feb. 20.—I have since writing you last discovered the bacillus in the common bed-bug (*Cimex lectularia*). . . . I believe that the *Cimex* is more of a factor in the spread of leprosy among the natives than the gnat' (here follow reasons). Full reports of the work with microphotographs of slides will be given publicity in May."

LITERARY NOTE.

MR. HEINEMANN, 20 and 21 Bedford Street, London, W.C., has in preparation a useful little work for the general practitioner and the medical student, on "The Management of the Commoner Infections," by Dr. R. W. Marsden, Hon. Physician to the Ancoats Hospital, and Hon. Assistant Physician to the Hospital for Consumption, Manchester.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Treatment of Gonorrhœa in the Male. By CHARLES LEEDHAM-GREEN, M.B., F.R.C.S.; Senior Surgeon to Out-Patients, Queen's Hospital, Birmingham; Surgeon to the Birmingham and Midland Hospital for Children; Assistant Lecturer on Bacteriology, University of Birmingham. London: Baillière, Tindall & Cox. 1906. Demy 8vo. Pp. xii + 151.

THE subject of gonorrhœa is a fertile one in all the various senses in which that adjective is employed by the practitioner of the art of healing. It provides the surgeon with many of the most lucrative items of his practice—so tempting, indeed, has it proved to be in this aspect that we sometimes hear of physicians of the equestrian order undertaking the therapeusis of a case, especially since the proof of its microbic origin has furnished an unbreakable link of cousin-germanship with the epidemic and endemic fevers and other infective diseases. Its complications form the foundation of many a life-long annuity to the surgical fraternity; and one of the richest domains of gynecological culture was originally furnished and is kept continuously replenished by growths inflammatory, acute and chronic, macroscopic and microscopic, which owe their original starting-point to the local visitation and colonisation of the enterprising gonococcus.

The subject is one which has been often dealt with in print; but we have not seen any other English volume which places before the reader all the up-to-date improvements in the treatment of this disorder: in fact it is the only monograph in our language which includes the most recent modern views of the pathology and scientific management of the disease. The fact that it does so, well and clearly, is sufficient recommendation to all readers,

surgical and medical (when the latter elect to poach on the preserves of gonorrhœal therapeutics). The text is divided into two parts: the first includes twelve chapters on "Gonorrhœa" proper, the second eight chapters on "Complications." *Stricture* and *gonorrhœal conjunctivitis* have been omitted; and, we think, very judiciously. There are 36 well-selected illustrations.

The author's task has been performed carefully, skilfully, and thoroughly, and we regard his little volume as a decided acquisition to our surgical library.

Unconscious Therapeutics; or, The Personality of the Physician. By ALFRED T. SCHOFIELD, M.D., M.R.C.S., &c.; Hon. Physician to Friedenheim Hospital; Author of "The Unconscious Mind," "The Force of Mind," &c. "Only a good man can be a good doctor."—Professor Nothnagel. Second Edition. London: J. & A. Churchill. 1906. 8vo. Pp. xiv + 317.

THE author tells us in his preface that some important additions have been made to the text in the present edition, while "Chapter VI. has been considerably altered." He, very naturally, finds cause of gratification in the fact that "interest in the subject is everywhere increasing," and goes on to express the hope that it will "before long be regularly taught in our schools." We should not be surprised to find this anticipation prove a well-founded one. The amateurish investigation of matters metaphysical is, undoubtedly, one of the characteristic features of this rapidly progressive age—with its much-vaunted individual liberty, its very questionable equality, and its still more doubtful fraternity. Mark Twain has somewhere expressed the opinion that the religion of the individual should in every case be made to fit him like his clothes: the moral garments of the mind being tolerable and really capable of fulfilling their essential functions only when moulded on their contents. Any attempt at the universal adaptation of a single creed is, according to his view, purely procrustean in principle

as well as in practice, and worthy of only the heathen barbarism of the pre-classical ages of human evolution. There is no possible doubt, whatever, of the historic truth that, ever since England's Royal Bluebeard forcibly assumed the function of his country's ecclesiastical pilotage, there has existed a tendency in the direction so indicated by the great Yankee humourist. It progressed slowly at first—very necessarily so, indeed—on account of the absolute ignorance of the masses. But, in the present day, when education is universal, and one man's opinion—like his vote—counts for as much as that of any of his contemporaries, we are not far from absolute truth in saying that in some communities the religious goal referred to has been almost, if not quite, attained. The same freedom of thought and action has extended to the healing art, and now forms one of the most serious drags on its real progress—although the fact seems to have hitherto escaped general observation. And now that the diffusion of knowledge is unlimited and universal, we have the same mental licence extended to the investigation of its most labyrinthine region; that of metaphysics! Every educated citizen of a free country in this our twentieth century can amuse himself by displaying his kittenish gymnastics in trying to catch his mind's caudal appendix; and he shows himself—in many cases, indeed—thoroughly appreciative of his privilege. In doing so he finds himself absolutely satisfied of the superiority of his attainments, and his method of applying them, to those of Plato and Aristotle of old; while he fully convinces the skilled critic that he has never made himself acquainted with the ideas of those antiquated thinkers—in the majority of instances, too, clearly proving himself utterly incapable of comprehending them. Our so-called progress has become truly parlous in some of its aspects and symptoms; while the chances of reform are reduced almost to zero level by the contemplation that a knowledge of Greek and Latin—or even of grammatical English—is unnecessary for “eminence” in what was formerly one of the most learned of the professions. Dr. Schofield regards himself as a pioneer in

the mental domain of therapeutics. We consider that what little there is of good in his volume is not new, and what is new is not good.

The Prevention of Senility and a Sanitary Outlook. By SIR JAMES CRICHTON BROWNE, M.D., LL.D., F.R.S.; Lord Chancellor's Visitor in Lunacy. London: Macmillan & Co., Ltd. New York: The Macmillan Co. 1906. 8vo. Pp. 141.

As one of the truly Grand Old Men of our profession, the author of this volume is sure to command a specially respectful audience for the consideration of this enunciation regarding the intensely important subject—especially to the middle-aged—of the prevention of the encroachments of old age and the genesis and growth of its characteristic symptoms and phenomena. The philosophic width of the writer's views may be guessed even from a quotation which includes but a couple of sentences: "Stripped of his alleged superfluities man would be left a miserable maimed mortal, limping feebly through a bald and barren existence. The history of modern civilisation, Lord Beaconsfield said, has consisted in the struggles of the West to obtain the spices of the East, and the abolition of 'cakes and ale' out of deference to the virtuous physiologist would invariably administer a check to progress." The hankering after immortality, the postponement of old age, and the (universally-distributed zoological) instinct of self-preservation, may, perhaps, be safely regarded as several representative planes of evolutionary development in the history of animated nature. The physical desirability of preserving youth, with its bouncing buoyancy, is still more pointedly emphasised by the comparatively disreputable position to which old age has been relegated by the more actively responsible juniors of this rapidly moving era. The recently suggested euthanasia at sixty, coming as it did from one of the highest living medical authorities, hardly tends to improve the appreciation of our elderly contemporaries. Sir James Crichton Browne does not accept such arithmetical limitations, and mentions striking in-

stances of monuments of intellectual genius produced after the age of eighty. As a matter of fact, the present decade has proved specially wealthy in its output of centenarians; and we are rather of the opinion that, with due adaptation of present-day science to daily existence, and a lowering of the speed representative of hurry, and scurry, and worry, the centenarian goal should come to be regarded as almost artificially attainable—in presence of an originally healthy human organism, and in absence of serious accidents and misadventures. There is a something in the saying of Confucius, which makes us sometimes think that the West has still something to learn from the East: "Until a man is thirty he is like the ivy or vine, with no inherent strength; at forty he is a bare tree; at fifty he puts forth leaves; at seventy, fruit." Now that we have attained to a knowledge of scientific sanitation, let us give up racing one another to death!

Reference Handbook of the Diseases of Children. By PROF. FERDINAND FRÜHWALD, Chief of Clinic in the Vienna Polyclinic. Edited, with additions, by THOMPSON S. WESTCOTT, M.D., Associate in Diseases of Children in the University of Pennsylvania. 176 Illustrations. Philadelphia and London: W. B. Saunders & Co. 1906.

THIS reference book is a new departure in this class of literature. Alphabetically arranged like a dictionary, brief descriptions are given of most diseases of children. It has apparently been well received in Germany, but it has many defects which render it imperfect in its present form.

The paragraphs are carefully written, and in most cases are fairly modern in thought. The treatment recommended is, on the whole, sound, and much the same as is customary in English hospitals. There is no reference, however, to many important subjects. For instance, aphasia and speech defects, rheumatoid arthritis, posterior basal meningitis, Friedreich's disease, and others are omitted.

Many of the illustrations are very good and carefully executed. In reference to this volume the practitioner may find some thoughts suggested which may escape his notice, and we think it will be a useful volume to those interested in these diseases. It is, however, not a text-book, and in no way intended to take the place of such manuals. As a reference book to modern German thought on these diseases it has certainly some distinct merits, but will scarcely take rank with our English treatises.

RECENT WORKS ON SURGERY.

1. *Modern Surgical Technique in its Relation to Operations and Wound Treatment.* By C. YELVERTON PEARSON, M.D., M.Ch., F.R.C.S.; Professor of Surgery, Queen's College, Cork; Fellow and Examiner in Surgery, Royal University of Ireland; Surgeon to the North Charitable Infirmary and County and City of Cork General Hospital; Surgeon to the County and City of Cork Victoria Hospital for Women and Children; Hon. Obstetric Surgeon to the County and City of Cork Lying-in-Hospital; Hon. Life Member of the Austin Flint Med. Assoc., Iowa, U.S.A. Illustrated with two Coloured and other Plates, and One Hundred and Eleven Illustrations in the Text. London: John Bale, Sons & Danielsson, Ltd. 1906. Pp. 392.
2. *A Manual of Operative Surgery.* By JOHN FAIRBAIRN BINNIE, A.M., C.M. (Aberdeen); Professor of Surgery, Kansas State University, Kansas City; Fellow of the American Surgical Association; Membre de la Société Internationale de Chirurgie. Second Edition, Revised and Enlarged, with 567 Illustrations, a number of which are printed in Colours. London: H. K. Lewis. 1905. Pp. 655.
3. *A Manual of Surgery for Students and Practitioners.* By WILLIAM ROSE, M.B., B.S. (Lond.), F.R.C.S., Emeritus Professor of Surgery in King's College, London, and formerly Senior Surgeon to King's College

Hospital; and ALBERT CARLESS, M.S. (Lond.), F.R.C.S., Professor of Surgery in King's College, and Surgeon to King's College Hospital, London, Examiner in Surgery to the Victoria University of Manchester and to the Universities of London and Leeds, &c. Sixth Edition. University Series. London: Baillière, Tindall & Cox. 1905. Pp. 1380.

4. *The Operating Room and the Patient.* By RUSSELL S. FOWLER, M.D.; Surgeon to the German Hospital, Brooklyn, New York. Fully illustrated. W. B. Saunders & Co. 1906. Pp. 172.
5. *Abdominal Operations.* By B. S. A. MOYNIHAN, M.S. (London); F.R.C.S. (Leeds). Fully illustrated. W. B. Saunders & Co. 1905. Pp. 694.
6. *Surgical Nursing.* By RUSSELL HOWARD, M.B., M.S. (Lond.); F.R.C.S. (Eng.). London: Edward Arnold. 1905. Pp. xvi + 318. Cr. 8vo.
7. *Notes on Surgery for Nurses.* By JOSEPH BELL, M.D., F.R.C.S. (Edin.) Sixth Edition. Edinburgh: Oliver & Boyd. 1906. Cr. 8vo. Pp. 187.

1. THE first volume before us is the outcome of a series of lectures delivered specially at various periods by Professor Yelverton Pearson to the members of his surgical classes at Queen's College, Cork, and is dedicated to the past and present students of that College.

The contents are divided into four parts.

Part I. treats of preliminary considerations, the subject being introduced by stating the position of surgery, the germ theory of disease, and the researches of Pasteur.

Chapter II. gives a succinct, yet clear, account of surgical bacteriology.

Chapter III. is devoted to infection, its sources, and the theories of immunity, natural and acquired. This section of the book is completed by the addition of two chapters on disinfection in general and an enumeration of the various antiseptics that have been employed at one time or another by various surgeons. An unnecessary amount of space is, in our opinion, devoted to a consideration of a

large number of antiseptics, or so-called antiseptics, that are seldom used at present.

Part II. opens with a chapter on the disinfection of the hands. Various methods of procedure are described, as well as the methods adopted by the author himself. The results of the author's experiments in connection with the method he favours are given, as well as the results of the investigations of Mr. Leedham-Green in this connection.

In Chapter VIII. we find a description of the selection of sponges for operations and the method of their preparation. We must confess to surprise at finding that the author prefers the marine sponges for his operative work. He is of the opinion that the crusade against marine sponges has been carried too far, and that sooner or later a reaction in their favour will set in. We think but few surgeons will be found to agree with that opinion. The preparation of ligatures and the sterilisation of dressings are fully described.

Part III. consists of five chapters, in which are described the technique of making and closing wounds, the methods of arresting hæmorrhage, and the different forms of sutures used in closing wounds.

In Part IV. we find a description of the operating room, the arrangements during the performance of the operation, the preparation of the patient, and the after-treatment of operative cases, while the volume concludes with a chapter on operations in private houses.

Full use is made of the work of Kocher, C. B. Lockwood, and Mr. Leedham-Green by the author, who has evidently spared no pains to render the book reliable and accurate in its teaching.

The volume is one which we can very favourably recommend to every house surgeon, student, and nurse who wishes to have a clear, concise, and accurate account of modern surgical technique.

2. If the disposal of a complete edition of a book within the short period of nine months is an indication of the favour with which it is received by the profession then Mr. Binnie should indeed feel satisfied with his efforts to

place in the hands of the profession a book worthy of their approval. There is but little room for change when a second edition appears so soon after the first, consequently it is quite unnecessary for us to enter into details in connection with the present edition. Where revision was necessary it has been done, and the book is further enlarged by the addition of some new material which has been incorporated. The illustrations are all that can be desired, and we can only endorse what we said of the previous edition, and recommend the work as sound, reliable, and thoroughly up to date.

3. THIS volume is now so well known to students and practitioners that it is unnecessary for us to do more than mention that a new edition has appeared. This sixth edition has been thoroughly revised by Mr. Carless. The "make-up" of the book has been so modified that extensive alterations and additions have been made without increasing the bulk of the volume—in fact, its bulk has been diminished. Many sections are almost new, and the pathology is accurate and up to date. The chapter on Bacteriology has been re-written, and a new chapter on "The Blood in Health and Disease" has been added. These points are but a few of the many changes to be found in the book, and are sufficient to indicate that no pains have been spared to make the present edition as popular and as reliable in its teaching as its predecessors.

We congratulate the authors on the—we might almost say—unprecedented success of their work.

4. WE are told that Dr. Fowler's book is but a forerunner to a much larger volume upon *post-operative* treatment. It deals with the personnel of the operating room, the instrument and supply room, the anæsthesia, the general preparation of the patient for the various operations, the general considerations in the after-treatment, and lists of instruments and dressings commonly employed in the various operations in surgery. Over forty pages are devoted to the enumeration of the various instruments required for different operations. The volume is one we can recom-

mend to nurses and dressers as one in which they will find much suitable information on the various topics of which it treats.

5. MR. MOYNIHAN'S volume is devoted to a description of various steps in the performance of the operations mainly practised by surgeons generally, and almost all practised by the author himself. The organs which are extraperitoneal, or only partly intraperitoneal, are not included, nor are any gynaecological operations described. Every surgeon is acquainted with Mr. Moynihan's views on gastric and gall-bladder surgery, as well as the surgery of the pancreas, consequently we are absolved from criticism or detailed reference to them.

Intestinal surgery and the surgery of the spleen are dealt with in as practical a manner as we expected from the opinion we have formed of the author after the perusal of his writings on practical surgical problems from time to time during the past seven or eight years.

The details of operations are tersely and clearly given, and the thoroughly practical points are brought out prominently. The illustrations are numerous, and depict well the different procedures described in the text. They add much to the practical value of the book.

We congratulate the author, and strongly recommend his book to every practising surgeon.

6. MR. HOWARD'S book on surgical nursing and principles of surgery for nurses is an excellent practical work, and can be confidently recommended to those for whom it is intended.

7. DR. JOSEPH BELL'S "Notes on Surgery for Nurses" has not been brought up to date—at any rate in our opinion. The teaching has not been made to advance with the strides made in surgery during the past ten or twelve years.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR THORNLEY STOKER, M.D., F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF SURGERY.

President—SIR ARTHUR CHANCE, P.R.C.S.I.
Sectional Secretary—F. H. TAYLOR, F.R.C.S.I.

Friday, March 23, 1906.

THE PRESIDENT in the Chair.

Treatment of Acute Peritonitis.

MR. EDWARD H. TAYLOR read a paper on the above. After some introductory remarks concerning certain clinical and pathological types of acute peritonitis Mr. Taylor laid emphasis upon the importance of accurate diagnosis of the starting point of the infection. He discountenanced the administration of morphia before a diagnosis had been made, owing to the way in which it masked symptoms. Mr. Taylor then discussed the principal indications for prompt surgical intervention and the points upon which reliance should be placed in arriving at a conclusion as to the necessity or advisableness of operation. In connection with the operation itself he strongly advocated general anæsthesia, but recommended that it should not be unduly pressed. Local anæsthesia might suffice if it were desired merely to evacuate an encapsuled collection of pus or to establish a fæcal fistula. The conditions likely to be encountered on opening the abdomen were then briefly alluded to and their significance explained. The exact means which should be employed for removing the peritoneal exudate—viz., dry mopping or flushing—were considered in detail, and their

advantages as well as their drawbacks pointed out. In conclusion, he reviewed the subject of peritoneal drainage—viz., the best means for ensuring it, and the difficulties which had to be encountered. He regarded drainage of the general peritoneal cavity as practically impossible owing to the rapidity with which drains of all kinds were encapsuled. When acute peritonitis had reached an advanced stage, the abdomen being greatly distended, the extremities cold and livid, the heart's action weak, and the pulse very frequent and feeble, it was doubtful if operative measures could hold out much hope. Abstention from operation in such cases would probably afford evidence of a wise discretion. If intestinal paralysis were impending the cæcum might, with advantage, be opened and drained (typhlotomy). Incision and evacuation of the small intestine (enterotomy) or drainage by one or more apertures (enterostomy) too often proved disappointing measures.

THE PRESIDENT regarded the administration of morphin in peritonitis cases, as a rule, unwise; it might, however, be useful before operation. Flushing of the peritoneum tended to revive the patient and stimulate the peristaltic action of the intestine. He was inclined to sanction operative measures even in desperate cases, as they alone appeared to offer any prospect of recovery. He related the clinical history of a patient under his own care in whom recovery followed operation, although everything pointed at first to a speedily fatal issue.

MR. R. CHARLES B. MAUNSELL considered morphin before operation harmful, as it tended to cause flatulent distension of the intestines. His own practice was to mop out and dry the peritoneum with gauze, and drain in cases of diffuse (not generalised) peritonitis. He did not flush under such conditions. He described the method which he usually carried out when flushing was indicated. Two openings were necessary, one above and the other below the umbilicus in the hypogastrium.

DR. GOULDING was not strongly opposed to the use of morphin, he regarded it of enormous value in relieving pain. He was in favour of flushing as a means of cleansing the peritoneum.

Volvulus of the Cæcum treated by reduction and Appendicostomy.

MR. R. CHARLES B. MAUNSELL read a paper on this topic. The appendix was used as a means of fixation and drainage. Mr. Maunsell advocated closure of the appendicostomy opening by

excision or invagination of the mucous lining leaving the muscular portion of the stump to cicatrise. He did not consider it necessary to formally excise the stump from the cæcum. The indications for the operation were then briefly enumerated, and attention was drawn to its obvious use as a means of combating ileus in peritonitis.

The communication was discussed by MR. WHEELER and MR. EDWARD H. TAYLOR.

SECTION OF MEDICINE.

President—SIR WILLIAM SMYLY, M.D., P.R.C.P.I.
Sectional Secretary—F. C. PURSER, M.D., F.R.C.P.I.

Friday, March 30, 1906.

GEO. PEACOCKE, M.D., in the Chair.

Keratosis.

DR. W. J. THOMPSON exhibited a case of the above which had been under his care. The patient's personal and family history was good, and before Christmas he was quite well. Then the palms of his hands and soles of his feet became rough, thickened, and swollen. The inside of the mouth became very much swollen, and the gums covered the teeth. His eyes were blood-shot; the skin thickened in the axillæ and about the elbows and chest. All the openings of the body, ears, eyes, &c., were swollen; that of the nose sometimes became ulcerated and painful. His organs, nervous system, reflexes, and thyroid were normal.

DR. WALLACE BEATTY considered it to be an example of acanthosis nigricans, and exhibited a plate illustrating the affection.

DR. W. J. THOMPSON said the patient was under thyroid treatment for the past three weeks with considerable benefit. He added that the man's genital organs were completely atrophied.

Bradycardia, with Arrhythmia and Epileptiform Fits.

DR. FINNY read the notes of a case of the above, which had been under observation for nine months, and which ended fatally after very severe and prolonged fits of syncope. [His paper will be found at page 321.]

Leukæmia.

DR. PARSONS read notes on a case of the above. The patient, a man aged thirty-eight years, was admitted to the Royal City of Dublin Hospital on September 8th, 1905, complaining of swelling in his abdomen, shortness of breath, and palpitation of the heart. On examination the spleen extended three inches to the right of the umbilicus, and as low down as the anterior superior spine of the ilium. There was practically no enlargement of the lymphatic glands, and no tenderness on percussion over the long bones. The blood-count made on September 21st showed red blood corpuscles 3,070,000, white blood corpuscles 260,800, and hæmoglobin 57 per cent. A differential count of the white blood cells disclosed 65 per cent. of myelocytes and 20 per cent. of polynuclear neutrophils. The changes in the blood counts were indicated on large diagrams specially prepared. The diminution in the size of the spleen was demonstrated by photographs, and detailed observations on metabolism were discussed. When discharged on March 14th the spleen had greatly diminished, the red blood corpuscles had increased to 3,900,000, and the white blood corpuscles had fallen to 9,000. The myelocytes were present in only 8 per cent. of the total leucocytes. The treatment consisted of arsenic, iron, phosphorus, and the X-rays.

DR. FINNY said the paper gave rise to a very interesting question—viz., what value was to be given to the X-ray treatment in this affection as regarded the red corpuscles and the size of the spleen.

DR. C. M. BENSON said he was associated with Dr. Parsons in this case. The patient did not suffer from any nausea or giddiness. The dermatitis was slight after the X-ray treatment. The X-rays were said to have an antiparasitic action and to cause partial destruction of the white cells without affecting the red corpuscles.

DR. WATSON said he saw some cases treated in London a few weeks ago. The dermatitis did not cause much concern, although in two or three cases it seemed to have been very severe after the application of the X-rays. As regarded the action of the X-rays on the spleen and other glands, he believed that a gland, after prolonged exposure to the rays, would become fibrous.

DR. A. R. PARSONS, in reply, said that the dermatitis resulting from the X-ray treatment gave rise to no inconvenience, while the size of the spleen and number of white cells were diminished.

SECTION OF OBSTETRICS.

President—R. D. PUBEROY, M.D., F.R.C.S.I.

Sectional Secretary—H. JELLET, M.D., F.R.C.P.I.

Friday, April 6, 1906.

SIR ARTHUR MACAN in the Chair.

Exhibit.

DR. J. S. ASHE exhibited a new cystic ovary perforator and forceps.

Myoma of the Uterus showing Cystic and Calcareous Degeneration.

DR. HORNE showed a specimen. He said the patient was aged forty-five and the mother of six children, and had menstruated regularly. The tumour occupied the whole abdominal cavity. It resembled an ovarian tumour, as there was considerable feeling of softening about it. Notwithstanding the large size of the uterine cavity, the clinical history revealed no menorrhagia. A loud tympanitic note could be elicited in front of the abdomen. On removal of the tumour he found it contained a large degenerative cystic cavity, with a number of small cysts and calcareous areas. The report of the pathologist (Professor McWeeney) showed that the organ was enormously enlarged owing to intra-mural fibroids, and in the centre is a cavity resembling a cyst. The microscope shows the tissue of the tumour to consist of unstriped muscle, and the cyst to be a "pseudo-cyst"—i.e., one due to ischæmic necrosis of the muscle and its gradual softening. There are no genuine cysts in any of the sections, and no evidence of malignancy.

DR. HASTINGS TWEEDY said he would like to know whether a pedicle was looked for through the rectum in this case? He did not believe that the size of the uterus was a necessary feature of distinction between ovarian cyst and myoma. Sub-peritoneal myomata were not likely to enlarge the uterus.

DR. R. J. ROWLETTE said he had examined some specimens which simulated the appearances of the one shown.

SIR ARTHUR MACAN said he had come across a case in which a true fibro-cyst was manifest, the fluid of which coagulated on exposure. He did not know whether the pathology of this coagulable condition was thoroughly determined or not.

DR. KATHARINE MAGUIRE also spoke.

DR. HORNE, in reply, said the patient after admission to hospital had a febrile attack, and had the facies of a person suffering from ovarian tumour. The muscles of the chest and

forearms were wasted. The tumour and the cervix uteri were one body. He did not make a rectal examination for a pedicle, as the case admitted of no doubt, though he appreciated the value of that procedure in ovarian disease.

Cancer of Ovaries.

DR. HASTINGS TWEEDY exhibited a specimen of cancer of both ovaries. He said the patient was a girl of twenty-one, who had been operated on in a city hospital some weeks previously for an ascitic collection, supposed to be the result of tubercular peritonitis. She entered the Rotunda Hospital five weeks afterwards, in an apparently dying state, and enormously distended by peritoneal dropsy. On opening the abdomen he found the intestines tucked up under the diaphragm and very adherent to each other; they, together with the entire peritoneum, were studded with coarsely granular masses, which he remarked at the time of the operation resembled endothelioma rather than tubercle. The ovaries appeared papillomatous, and were both removed. The abdominal cavity was drained with five wicks of iodoform gauze in the hope that they would be the means of causing an adhesive peritonitis, and so obliterating the weeping surfaces. For several days she poured fluid through the drains, but this gradually became less, and she left hospital symptomatically cured, and declaring that she was feeling better than she had done for two years. Dr. Rowlette, who examined the pathological condition of the parts removed, would be able to deal more fully with the microscopic findings.

DR. R. J. ROWLETTE said the tumours were of a nodular character, the nodules varying from the size of peas to that of beans. In the substance of the nodules there were small cysts, some of these being filled with a clear, and others with a blood-stained, fluid. Both ovaries were similarly affected. Microscopic examination revealed masses of large cells, with a slight fibrous stroma. He regarded the tumour as an endothelioma, originating probably from the endothelium of the peritoneum.

SIR ARTHUR MACAN said he recalled a case in which, when the abdomen was opened, a large tumour thought to be malignant was apparent. On removing the tumour the patient got quite well; but the diagnosis of malignancy was possibly not correct. It was interesting to note how drainage, in the case under discussion, had the same beneficial effect as excision had on tubercle.

DR. H. TWEEDY said he had examined the patient that morning. Her abdomen was hard, and the cancer seemed again advancing.

Case of Hernia of the Gravid Uterus through an old abdominal scar.

DR. ARTHUR HOLMES read a paper on this subject. The patient had become pregnant shortly after the operation, and had noticed a lump protruding from the lower part of the abdomen. This after the confinement had almost disappeared. She again became pregnant, the lump steadily increasing, and circular ulcers formed where the clothes and thighs had rubbed. After delivery in November, 1903, the tumour remained, though smaller in size. On December 22nd, 1905, she came to the Rotunda Hospital. On examination a tumour was found springing from between the umbilicus and symphysis, which, falling forward, reached more than half-way down the front of the thigh. This proved to be the uterus, and the foetal movements were felt. The skin was very thin, and large circular ulcers were distributed over its surface. Some of these extended to the uterine muscle. The patient stated positively that she was at full term, and that labour pains were beginning. She delivered herself suddenly without any trouble of a live child, which presented all the appearance of being up to full term. Its weight was $3\frac{1}{2}$ lbs., and its length 14 inches. The placenta was removed manually on account of hæmorrhage. Reduction of the uterus was impossible on account of the adhesions. The diminutive size of the child was thought to be due to the diminished blood-supply, consequent on the abnormal position of the uterus, and the constriction caused by the ring of the sac.

DR. HORNE said he had never seen a case of this kind. It was hard to conceive how the child was born through so great a constriction.

DR. A. HOLMES said the woman delivered herself, and had no pain. The tumour was about the size of a man's head. Dr. Purefoy told him that the woman is going about her work and is apparently well. The child died shortly afterwards of an attack of green diarrhoea.

Some Remarks on Uterine Suspension and Shortening Round Ligaments.

DR. J. S. ASHE read a paper so entitled (Adelaide Hospital Report, 1905). He first laid stress on the fact that many cases are operated on that should not be, and *vice versâ*; he then went on to tabulate cases which should be left alone or which should be operated on. From the Adelaide Hospital Report he showed the statistics of the various operations done during that year,

1905, the results after the operations, and interesting points in connection with them, and he finally endeavoured to point out how superior and more satisfactory the operation of suspension was compared with the shortening of ligaments.

DR. HORNE said that when the uterus was retroflexed after delivery it rarely recovered its position ; and it was a question whether it should be left severely alone unless some symptom demanded interference. He had rarely, if ever, seen any untoward results follow the use of pessaries ; and if such did occur, it was possible the pessaries had not been properly applied. Last month he removed a pessary that had been eighteen months in the vagina of a poor woman, without injury. When a pessary was used it was unnecessary to see the patient oftener than every three or four months. In the Alexander operation it was always difficult to find the ligaments, which were not in a healthy condition ; besides shortening the round ligaments a pessary had to be used. He preferred the suspension method. The statistics brought forward by Dr. Ashe were rather scanty to be relied on.

DR. HASTINGS TWEEDY said it was not uncommon to observe retroflexions which did not give rise to symptoms. These were often congenital cases, and in such this backward position must be considered normal. It is almost unnecessary to state that these cases were best left untreated. Pessaries might well be compared to trusses ; they had a narrow sphere of usefulness, but were by no means harmless. He did not think enough stress was laid on the mental ill-health likely to be engendered by the constant wearing of a pessary in the case of neurotic patients. He had personally seen nothing but good follow from the fixation of the uterus by operative measures. In danger such operations might well be compared to the danger following the extraction of a tooth, and he had yet to observe difficult parturition following as a result.

SIR ARTHUR MACAN said it was obvious there were no serious symptoms connected with retroflexion of the uterus, whether congenital or acquired, when a woman could go about in that condition for twenty years without knowing that anything was amiss. There was a theory that it brought the ovaries into Douglas' pouch. He rather favoured the use of pessaries. A woman came to him who had worn a pessary for eight years. She had no vaginitis, and the pessary showed no signs of wear. If pessary treatment was beneficial, it was preferable to operation.

DR. ASHE briefly replied.

SANITARY AND METEOROLOGICAL NOTES.

Compiled by the EDITOR.

VITAL STATISTICS

For four weeks ending Saturday, April 21, 1906.

IRELAND.

TWENTY-TWO TOWN DISTRICTS.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending April 21, 1906, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 23.3 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,093,959. The deaths registered in each of the four weeks ended Saturday, April 21, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality.

TOWNS, &c.	Week ending				Average Rate for 4 weeks	TOWNS, &c.	Week ending				Average Rate for 4 weeks
	Mar. 31	April 7	April 14	April 21			Mar. 31	April 7	April 14	April 21	
22 Town Districts	26.5	21.7	22.1	23.3	23.4	Lisburn	22.7	22.7	27.3	9.1	20.5
Armagh	13.7	20.6	20.6	27.5	20.6	Londonderry	26.0	17.4	17.4	11.2	18.0
Ballymena	14.4	19.2	19.2	28.7	20.4	Lurgan	13.3	8.9	8.9	31.0	15.5
Belfast	29.2	24.6	24.1	24.9	25.7	Newry	33.6	29.4	4.2	25.2	23.1
Clonmel	30.8	20.5	5.1	30.8	21.8	Newtownards	22.9	34.3	28.6	28.6	28.6
Cork	24.0	13.7	21.2	18.5	19.4	Portadown	15.5	31.0	15.5	20.7	20.7
Drogheda	24.5	20.4	24.5	12.3	20.4	Queenstown	19.8	13.2	26.4	33.0	23.1
Dublin (Reg. Area)	26.1	21.1	23.4	28.1	24.7	Sligo	24.0	33.6	24.0	4.8	21.6
Dundalk	23.9	8.0	8.0	27.9	17.0	Tralee	15.9	10.6	31.7	-	14.6
Galway	31.1	3.9	19.4	27.2	20.4	Waterford	23.4	19.5	7.8	7.8	14.6
Kilkenny	14.7	39.3	4.9	-	14.7	Wexford	28.0	14.0	18.7	4.7	16.4
Limerick	31.4	31.4	28.7	13.7	26.3						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, April 21, 1906, were equal to an annual rate of 1.8 per 1,000—the rates varying from 0.0 in fourteen of the districts to 10.3 in Clonmel—the 6 deaths from all causes in that district including one from whooping-cough and one from enteric fever. Among the 171 deaths from all causes in Belfast are 21 from whooping-cough, 2 from enteric fever, and one from diarrhoea. The 7 deaths from all causes in Lurgan include one from measles.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, April 21, 1906, amounted to 202—104 boys and 98 girls; and the deaths to 215—112 males and 103 females.

DEATHS.

The deaths registered during the week ended Saturday, April 21, represent an annual rate of mortality of 29.6 in every 1,000 of the population. Omitting the deaths (numbering 11) of persons admitted into public institutions from localities outside the area, the rate was 28.1 per 1,000. During the sixteen weeks ending with Saturday, April 21, the death-rate averaged 24.1, and was 5.3 below the mean rate for the corresponding portions of the ten years, 1896–1905.

The registered deaths (215) included 3 deaths from measles, 2 deaths from enteric fever, and one death from dysentery. In each of the 3 preceding weeks, deaths from measles were 0, one, and one; deaths from enteric fever were 3, 0, and one; and deaths from diarrhoeal diseases were 2, one, and one. Three deaths were attributed directly to influenza.

There were 3 deaths from lobar pneumonia, 7 deaths from broncho-pneumonia, and 16 deaths from *pneumonia* (not defined).

The total deaths from all forms of tuberculous disease registered

during the week was 29. This figure includes 9 deaths from tuberculous phthisis, 9 deaths from *phthisis*, 5 deaths from tuberculous meningitis, 4 deaths from tuberculous peritonitis, and 2 deaths from other forms of the disease. In the 3 preceding weeks, the total deaths from all forms of tuberculous disease were 40, 38, and 35 deaths, respectively.

There were 2 deaths from carcinoma, 2 deaths from sarcoma, and 9 deaths from cancer (undefined).

Two deaths of prematurely born infants were registered.

There were 5 deaths of children under 5 years of age from *convulsions*.

Forty-five deaths were referred to diseases of the heart and blood vessels, and 36 deaths were caused by bronchitis.

Four deaths were attributed to accidental causes.

In 6 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 3 children under 5 years of age (including one infant under one year old) and the deaths of 3 persons aged 60 years and upwards.

Forty-five of the persons whose deaths were registered during the week were under 5 years of age (25 being infants under one year, of whom 6 were under one month old); and 79 were aged 60 years and upwards, including 37 persons aged 70 and upwards, of whom 8 were octogenarians, and one (a man) was stated to have been aged 91 years.

The Registrar-General points out that the names of the cause of death printed above in *italics* should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious disease notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended April 21, 1906, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epi- demic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Whooping cough	Cerebro-spinal Fever	Total
City of Dublin	Mar. 31	-	•	•	3	-	-	7	-	3	5	3	-	•	•	•	21
	Apr. 7	-	•	•	7	1	-	2	-	2	1	5	-	•	•	•	18
	Apr. 14	-	•	•	7	-	-	2	-	3	9	17	-	•	•	•	38
	Apr. 21	-	•	•	4	-	-	4	-	3	3	8	-	•	•	•	22
Rathmines and Rathgar Urban District	Mar. 31	-	•	•	-	-	-	-	-	-	2	2	-	•	•	•	4
	Apr. 7	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Apr. 14	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Apr. 21	-	•	•	-	-	-	1	-	-	-	1	-	•	•	•	2
Pembroke Urban District	Mar. 31	-	-	-	1	-	-	-	-	-	-	1	-	•	-	-	2
	Apr. 7	-	-	-	9	-	-	-	-	-	-	-	-	•	-	-	9
	Apr. 14	-	-	-	-	-	-	2	-	-	1	-	-	•	-	-	3
	Apr. 21	-	-	-	-	-	-	-	-	-	2	-	-	•	3	-	5
Blackrock Urban District	Mar. 31	-	•	•	1	-	-	-	-	-	-	-	-	•	•	•	1
	Apr. 7	-	•	•	-	-	-	-	-	-	2	-	-	•	•	•	2
	Apr. 14	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Apr. 21	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
Kingstown Urban District	Mar. 31	-	•	•	-	-	-	2	-	-	-	-	-	•	•	•	2
	Apr. 7	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Apr. 14	-	•	•	-	-	-	-	-	-	-	1	-	•	•	•	1
	Apr. 21	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
City of Belfast	Mar. 31	-	•	•	21	-	-	7	1	9	23	6	1	•	•	•	68
	Apr. 7	-	•	•	16	-	-	5	-	13	9	4	-	•	•	•	47
	Apr. 14	-	•	•	17	-	-	2	1	7	10	6	-	•	•	•	43
	Apr. 21	-	•	•	5	-	-	2	-	5	6	4	-	•	•	•	32

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended April 21, 1906, 3 cases of measles were admitted to hospital, one was discharged, there was one death, and 21 cases remained under treatment at the close of the week.

Four cases of scarlet fever were admitted to hospital, 12 were discharged, and 40 cases remained under treatment at the close of the week. This number is exclusive of 17 convalescents who remained under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital.

Two cases of typhus remained under treatment at the close.

Seven cases of diphtheria were admitted to hospital, 7 were discharged, and 19 patients remained under treatment at the close of the week.

Two cases of enteric fever were admitted to hospital, 6 were discharged, and 22 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 19 cases of pneumonia were admitted to hospital, 13 were discharged, 3 patients died, and 34 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended April 21, 1906, in 76 large English towns, including London (in which the rate was 19.2), was equal to an average annual death-rate of 17.3 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 17.6 per 1,000, the rate for Glasgow being 18.5, and for Edinburgh 17.9.

INFECTIOUS DISEASES IN EDINBURGH.

The Registrar-General for Ireland has been favoured by Sir Henry D. Littlejohn, M.D., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended April 21. From this Return it appears that, of a total of 48 cases notified, 25 were scarlet fever, 9 diphtheria, one membranous croup, 10 erysipelas, and 3 typhoid fever. Among the 364 cases of infectious diseases in hospital at the close of the week were 174 cases of scarlet fever, 54 of diphtheria, 87 of measles, 16 of erysipelas, 13 of whooping-cough, and 11 of typhoid fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of April, 1906.

Mean Height of Barometer, - - -	30.104 inches.
Maximal Height of Barometer (9th, at 9 a.m.),	30.700 "
Minimal Height of Barometer (29th, at 3 p.m.),	29.105 "
Mean Dry-bulb Temperature, - - -	45.3°.
Mean Wet-bulb Temperature, - - -	42.1°.
Mean Dew-point Temperature, - - -	38.3°.
Mean Elastic Force (Tension) of Aqueous Vapour,	.234 inch.
Mean Humidity, - - -	77.7 per cent.
Highest Temperature in Shade (on 12th),	63.5°.
Lowest Temperature in Shade (on 19th),	32.0°.
Lowest Temperature on Grass (Radiation) (14th),	27.7°.
Mean Amount of Cloud, - - -	48.4 per cent.
Rainfall (on 18 days), - - -	1.829 inches.
Greatest Daily Rainfall (on 29th),	.608 inch.
General Directions of Wind, - - -	N.W., W.

Remarks.

A cold month, remarkable for a deficiency of cloud and consequent large diurnal range of temperature, due to solar radiation by day and terrestrial radiation by night. Up to the 16th the rainfall was infrequent and scanty—from that day to the close copious showers fell, but the precipitation was chiefly in the form of hail—especially severe hail-storms were experienced on the 24th, 28th, 29th, and 30th. Thunder was reported as heard at 5 p.m. of the 12th. The percentage of cloud at 9 a.m. was 55.0, and at 9 p.m. only 41.7, the mean being 48.4. Bright sunshine was estimated at 196.5 hours against only 107.75 hours in April, 1905. The daily average duration of sunshine was 6.6 hours. The planets Venus and Jupiter were well seen in the western evening sky towards the close of the month.

In Dublin the arithmetical mean temperature (45.9°) was 1.7° below the average (47.6°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 45.3° . In the forty-two years ending with 1906, April was coldest in 1879 (the cold year) (M. T. = 44.5°), and warmest in 1893 (M.T. = 51.4°).

The mean height of the barometer was 30.104 inches, or 0.254 inch above the average value for April—namely, 29.850 inches. The mercury rose to 30.700 inches at 9 a.m. of the 9th, and fell to 29.105 inches at 3 p.m. of the 29th. The observed range of atmospheric pressure was, therefore, 1.595 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 45.3° , or 2.0° above the value for March, 1906. Using the formula, *Mean Temp.* = *Min.* + (*Max.*—*Min.* $\times .476$), the value is 45.5° , or 1.8° below the average mean temperature for April, calculated in the same way, in the thirty years, 1871–1900 inclusive (47.3°). The arithmetical mean of the maximal and minimal readings was 45.9° , compared with a thirty years' (1871–1900 inclusive) average of 47.6° . On the 12th the thermometer in the screen rose to 63.5° —wind, S.E.; on the 19th the temperature fell to 32.0° —wind, W. The minimum on the grass was 27.7° on the 14th.

The rainfall was 1.829 inches, distributed over 18 days. The average rainfall for April in the thirty-five years, 1866–1900, inclusive, was 1.950 inches, and the average number of rainy days was 15. The rainfall, therefore, was slightly below the average, while the number of rainy days much exceeded it. In

1877 the rainfall in April was very large—4.707 inches on 21 days. On the other hand, in 1873, only .498 inch was measured on 8 days. In 1905, 2.466 inches fell on 25 days, and in 1904, 1.118 inches on 19 days.

Fog was observed on the 2nd, 6th, 10th, 11th, and 12th. High winds were noted on 7 days, but never reached the force of a gale. Hail fell on the 17th, 18th, 22nd, 23rd, 24th, 26th, 28th, 29th, and 30th; snow and sleet on the 28th. The temperature rose above 60° in the screen on 3 days. It failed to reach 50° on seven days. It fell to 32° in the screen on the 19th, and on sixteen nights it fell to or below 32° on the grass. The mean lowest temperature on the grass was 33.6°, compared with 37.3° in 1905, 39.1° in 1904, 37.0° in 1903, 36.8° in 1902, 37.3° in 1901, 39.0° in 1900, and only 31.6° in 1887.

The rainfall in Dublin during the four months ending April 30th amounted to 9.120 inches on 77 days, compared with 7.844 inches on 71 days in 1905, 9.056 inches on 74 days in 1904, 10.176 inches on 78 days in 1903, 7.175 inches on 59 days in 1902, 6.520 inches on 58 days in 1901, only 3.203 inches on 46 days in 1891, and a thirty-five years' average of 8.120 inches on 65 days.

At the Normal Climatological Station in Trinity College, Dublin, the observers, Mr. Thomas H. Hill, Sch., and Mr. Arthur R. Moore, B.A., return the mean height of the barometer as 30.104 inches, the highest reading observed being 30.704 inches at 9 a.m. of the 9th, the lowest, 29.146 inches at 9 a.m. of the 29th. The mean temperature was 45.3°, the mean dry-bulb reading at 9 a.m. and 9 p.m. being 45.6°. Rain fell on 17 days to the amount of 1.679 inches, .590 inch being measured on the 29th. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 182.0, giving a daily average of 6.1 hours. The corresponding figures for April, 1904, were 168 hours and 5.6 hours, and for April, 1905, 105 hours and 3.5 hours. The highest temperature in the shade was 62.6° on the 16th, the lowest was 30.1° on the 2nd. The highest reading of the black bulb *in vacuo* thermometer (solar radiation) was 120.5° on the 16th. The lowest temperature on the grass (terrestrial radiation) was 21.4° on the 2nd. The mean earth temperatures at 9 a.m. were—at a depth of one foot, 45.9°, at a depth of 4 feet also 45.9°.

Dr. B. H. Steede returns the rainfall at the Royal National

Hospital for Consumption, Newcastle, Co. Wicklow, as 1.673 inches on 13 days, the maximal falls in 24 hours being .440 inch on the 24th, and .391 inch on the 29th. Since January 1, 1906, the rainfall at this station amounts to 10.273 inches on 69 days. The thermometers in the screen rose to 62.5° on the 7th, having fallen to 32.3° on the 2nd.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall amounted to 1.755 inches on 9 days, compared with 2.835 inches on 18 days in 1905, only .930 inch on 14 days in 1904, 1.165 inches on 9 days in 1903, 3.105 inches on 14 days in 1902, and 2.800 inches on 15 days in 1901. The heaviest fall in 24 hours was .520 inch on the 21st. The total rainfall in 1906, up to April 30th, was 9.420 inches on 50 days, compared with 8.495 inches on 59 days in 1905, 9.037 inches on 68 days in 1904, 12.385 inches on 63 days in 1903, 9.215 inches on 48 days in 1902, 10.060 inches on 56 days in 1901, and only 5.686 inches on 50 days in 1896.

According to Mr. Robert O'Brien Furlong, C.B., at Cloneevin, Killiney, Co. Dublin, 1.62 inches of rain fell on 16 days. The maximal fall in 24 hours was .55 inch on the 24th. Hail, snow, or sleet fell on the 17th, 18th, 28th, 29th, and 30th. The average rainfall in April of the twenty-one years, 1885-1905, was 1.816 inches on 14.7 days. Since January 1, 1906, 8.53 inches of rain fell at this station on 73 days, compared with 9.17 inches on 69 days in 1905, 9.02 inches on 69 days in 1904, 9.67 inches on 76 days in 1903, 8.08 inches on 59 days in 1902, and 7.62 inches on 59 days in 1901.

Dr. Arthur S. Goff reports that the rainfall at Lynton, Dundrum, Co. Dublin, was 1.68 inches on 17 days, compared with 3.14 inches on 24 days in 1905, 1.48 inches on 18 days in 1904, 1.35 inches on 16 days in 1903, 2.63 inches on 16 days in 1902, and 1.19 inches on 12 days in 1901. The greatest daily rainfall was .41 inch on the 24th. The mean shade temperature was 45.4°, compared with 48.3° in 1901, 46.6° in 1902, 45.9° in 1903, 48.9° in 1904, and 46.4° in 1905. The thermometric range was from 60° on the 7th, 12th, and 16th to 34° on the 2nd, 10th, and 19th. Hail fell on the 17th, 22nd, 23rd, 27th, 28th, and 30th.

Mr. T. Bateman, of The Green, Malahide, Co. Dublin, returns the rainfall at 1.336 inches on 13 days, compared with 1.773 inches on 22 days in April, 1905. The greatest fall in 24 hours was .375 inch on the 24th. The shade mean temperature was

43.6° against 44.8° in 1905, the extremes being—highest, 60° on the 12th; lowest, 27° on the 18th.

In Cork, according to Mr. W. Miller, the rainfall amounted to 1.06 inches on 11 days, .37 inch being measured on the 4th. Since January 1, 1906, 10.52 inches of rain have fallen in Cork on 67 days, against an average for the first four months of the year of 12.78 inches on 68 days.

The Rev. Arthur Wilson, M.A., writes from the Rectory, Dunmanway, Co. Cork, to the effect that 1.62 inches of rain fell there on 12 days, the greatest falls in 24 hours being .67 inch on the 4th, .30 inch on the 28th, and .20 inch on the 29th, on which day showers of hail and snow fell. From March 18th to April 20th only .88 inch of rain fell on 7 days, and of this small amount .67 inch was measured on the night of the 4th of April.

At 21 Leeson Park, Dublin, Dr. Christopher Joynt, F.R.C.P.I., measured 1.645 inches on 16 days, the largest amount recorded in 24 hours being .490 inch on the 29th.

The rainfall recorded by Miss Muriel O'Sullivan at White Cross, Stillorgan, was 1.700 inches on 19 days, compared with 3.122 inches on 24 days in 1905. The maximum in 24 hours was .440 inch on the 24th.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 18 days to the amount of 1.570 inches, the greatest measurement in 24 hours being .375 inch on the 24th. The total amount of bright sunshine at this station was 203.1 hours, the most in one day being 12.7 hours on the 14th.

SYPHILIS COMMUNICATED BY LEECHES.

IN a journal entitled *Westphaelischer Anzeiger*, a physician relates a case in which leeches, used at first on a person affected with syphilis, and again employed on a child, communicated the disease to it. It is, therefore, necessary to know, when leeches are employed a second time, on whom they have been previously applied. *The Lancet*, Saturday, April 5th, 1828. [Notizen a. d. Gebiete der Natur. und Heilkunde, Tom. xviii., No. 7, page 111.] (Reprinted in *The Lancet*, Saturday, April 7th, 1906, under the heading "Looking Back.")

In Memoriam.

SURGEON-GENERAL CHARLES SIBTHORPE, C.B.,
F.R.C.P.I., M.R.I.A.

WITH keen regret we record the death of this distinguished Indian Medical Officer at the age of fifty-nine years. The sad event occurred on the morning of Friday, May 4, 1906, at his residence and that of his sisters, 36 Upper Leeson Street, Dublin. For the past three years GENERAL SIBTHORPE had been in a precarious state of health, suffering from chronic nephritis with heart complications; but it was not until March of the present year that his illness became critical while he was travelling in Egypt. With indomitable courage he made his way home through Italy, arriving in Dublin on the evening of Wednesday, May 2, in a very precarious condition. The end came suddenly on the following Friday morning, and he died in his sleep apparently from pulmonary thrombosis.

Born in Dublin in 1847, CHARLES SIBTHORPE was the son and namesake of Charles Sibthorpe, Esq., a man noted for his philanthropy, and a scion of a well-known and much-respected family long domiciled in the Irish capital. Educated at the Royal College of Surgeons in Ireland and at the Meath Hospital, Dublin, where he obtained honours, he became a Licentiate of the Irish Royal Colleges in 1869. On April 1, 1870, he joined, as Assistant-Surgeon, the Indian Medical Service, in which he was destined to have a brilliant career, spent for the most part in the Madras Presidency. He acted as Civil Surgeon and Superintendent of the Jail at Banda from July, 1874, to May, 1875. From the latter date to November, 1880, he served as Resident Surgeon to the General Hospital, Madras, as well as Professor in the Madras Medical College. SIBTHORPE first saw service in the field in the Afghan war of 1878-1879, in which Roberts' famous march on Kandahar took place. He received the Afghan medal and clasp. In

In Memoriam.

1880 he was elected a Fellow of the Royal College of Physicians of Ireland.

In 1885 and 1886 he served in the third Burmese war, at first under General Sir Herbert Macpherson, and on the lamented death of that distinguished officer he became General Sir Harry Prendergast's right hand man. In the second year's campaign he had the good fortune to be one of the few medical officers present at the capture of King Thebaw at Mandalay. For his services in this campaign, SIBTHORPE received the Burmese medal and clasp, and was honourably mentioned in despatches. In 1886 he was advanced to the rank of Brigade-Surgeon-General. From October, 1882, he served as Fort-Surgeon at Fort St. George, Madras, and as Professor in the Medical College. In 1884 he was elected a Fellow of Madras University. In January, 1888, he was appointed full Surgeon to the Madras General Hospital and Professor in the Madras College. He thus in succession held three Professorships in the Madras Medical College, and found time to write an important medical work entitled "Clinical Manual for India." In 1890 he reverted to military duty. From May, 1894, to 1900, Sibthorpe acted as Surgeon-General to the Madras Government, and on the occasion of Queen Victoria's "Diamond Jubilee" in June, 1897, he received the Military Companionship of the Bath. In August, 1900, he retired from the Indian Medical Service.

GENERAL SIBTHORPE was a Member of the Royal Irish Academy and a Fellow of the Imperial Institute. After his retirement from active service he travelled much, spending one winter in the West Indies and paying frequent winter visits to Egypt, but always returning with delight to his native land. He was a man of unblemished character and of unsullied honour. Both at home and in India he had hosts of friends. He himself was a true and faithful friend, and to his sisters the best of brothers. The President, and many of the Fellows, of the Royal College of Physicians of Ireland paid a last tribute to his memory by attending his funeral on Monday, May 7, when all that was mortal of their friend and colleague was laid to rest in Mount Jerome Cemetery.

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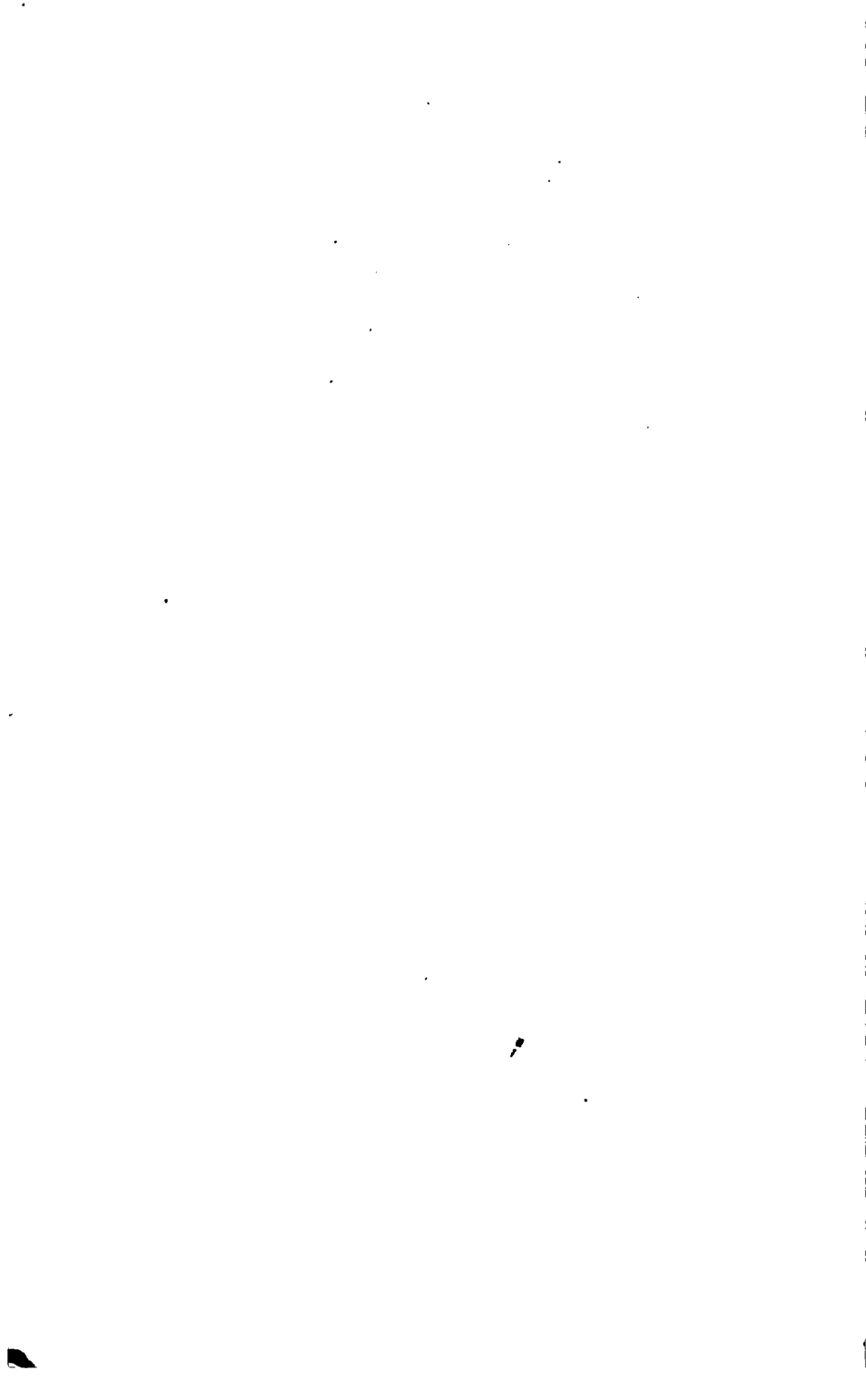
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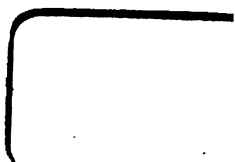








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